THIS NUMBER CONTAINS 154 PAGES.

VOL. LXX.—No. 832.] [FOURTH SERIES, No. 508.

THE VETERINARIAN,

A MONTHLY JOURNAL OF VETERINARY SCIENCE.

APRIL, 1897.

EDITED BY PROFESSOR METTAM.

CONTENTS.

Page

Original Papers.

Malarial Fever in Horses in India, or "Surra." By Veterinary Captain R. W. Burke, F.R.C.V.S., A.V.D., Corresponding Member of the Italian Veterinary Academy, London (late India) 185
Cyclopia (*Illustrated*) . . . 194
The Prevention and Suppression of Contagious Diseases of Animals. By the late Professor Walley, M.R.C.V.S., Principal of the Royal Veterinary College, Edinburgh . 203

Clinical Cases.

A Case of Hydrops Uteri. By Clement Baxter, M.R.C.V.S., Elgin . 211
A Tumour attached to the Mesentery causing Occlusion and Strangulation of the Bowel. By R. McGregor, M.R.C.V.S., Audlem, Cheshire . 212
An Interesting Post-mortem. By Alfred Marston, M.R.C.V.S., Kinnersley Letton, Herefordshire . 214
Passage of a Foreign Body from the Stomach of a Bullock into the Lung. By P. Scott Falshaw, M.R.C.V.S., Government Veterinary Surgeon, Singapore . . 215

Editorial Observations.

The Public Health (Scotland) Bill . 216
The Veterinarian and the *Record* . 218
Election Address—R. C. Irving . 220

Page

The Month's Progress . . 221

Current Topics.

Unprofessional Conduct. By Jno. A. W. Dollar, M.R.C.V.S. . . . 230
A Horseshoe made in Germany. By Jno. A. W. Dollar, M.R.C.V.S. . 234
The Public Health (Scotland) Bill. By Jno. A. W. Dollar, M.R.C.V.S. 237
Another Outbreak of Pleuro-pneumonia 240
New General Rabies Order . . 241
North London Police Court—Veterinary Prosecution . . . 243
Ivybridge Petty Sessions—Veterinary Prosecution 244

Army Veterinary Department 244

New Apparatus, &c.

Reliance Tooth Rasp (Patented) (*Illustrated*) 245
A Vapour Inhaler (*Illustrated*) . 245
A New Castrating Clam. By Amos Wilkinson, M.R.C.V.S., Newport Pagnel (*Illustrated*) . . . 246
The Sanitas Company, Limited . 247

Correspondence.

Letter from J. H. Loft, F.R.C.V.S. . 247
Notices to Correspondents . . 248

Reports of Veterinary Medical Societies (94 pages).

PUBLISHED BY ADLARD AND SON,
BARTHOLOMEW CLOSE, LONDON, E.C.

CALCUTTA: THACKER, SPINK, & CO.

Price 1s. 6d.

All Rights Reserved.

MOSS LITTER v. STRAW.

The Griendtsveen Brand of Moss Litter is the HEALTHIEST and most ECONOMICAL Bedding for Stock.

ADVANTAGES.

Considerably cheaper than Straw.	**Requires fewer Renewals.**	**Preserves Horses' Feet.**
Involves less Labour.	**Keeps stable air Pure.**	**Secures a warm downy Bed.**
	Absorbs all Ammonia.	**Makes a valuable Manure.**

THE GRIENDTSVEEN BRAND is unanimously agreed to be

THE BEST IN THE MARKET.

Quotations to any Station supplied on application to

The Griendtsveen Moss Litter Company, Limited.

62 & 63, MARK LANE, LONDON, E.C.

BRANCHES IN THE UNITED KINGDOM—

CARDIFF—14, Custom House Street. DUNDEE—62, Commercial Street. GLASGOW—102, Bath Street. LEITH (EDINBURGH)—10, Quality Street. NEWCASTLE-ON-TYNE—27, Quay Side.

Telegraphic Address for London and Branches "GRIENDTSVEEN" respectively.

HORSES, CATTLE, AND CARRIAGES INSURED

BY

THE HORSE, CARRIAGE & GENERAL INSURANCE CO.,

LIMITED.

HEAD OFFICES:—17, Queen Victoria Street, London, E.C.

The Oldest and Largest Office of its kind.

A. WATERS, *Managing Director.* R. R. WILSON, *Secretary.*

Claims paid exceed £185,000.

This Office is honoured with the Patronage of Her Majesty the Queen.

In One Volume, Royal 8vo, 722 pages, price 21s.

MÖLLER'S OPERATIVE VETERINARY SURGERY,

Translated and Edited from the Second Enlarged and Improved Edition of 1894.
By JNO. A. W. DOLLAR, M.R.C.V.S.
With 142 Illustrations.

"No practitioner who aspires to keep abreast of the times, or who means to keep in touch with the advances of modern Veterinary Surgery, can afford to do without it."—*Veterinarian.*

In One Volume, Demy 8vo, 776 pages, price 15s.

VETERINARY MEDICINES: Their Actions and Uses.

By FINLAY DUN, F.R.C.V.S.

This work, throughout its nine editions, has been the accepted Materia Medica Text-book at the British and American Veterinary Colleges, and has been used as a work of reference by Veterinarians, as well as by many Chemists and Druggists, and by Stock-owners.

Edinburgh: DAVID DOUGLAS, 10, Castle Street.

Highest Award, Chicago Exhibition, 1893.

—:o:—

MEDAL & DIPLOMA awarded for a Good Appetizer and an aid to Digestion.

SOLE MAKERS,

J. M'DOWALL & CO.,

The "ROYAL" HORSE AND CATTLE CONDIMEMTS,

BERKELEY STREET, GLASGOW.

Sold at 32/- per cwt. Sample Bag, containing 1 Stone, 4/- Carriage Paid.

AGENTS WANTED.

FOR BEST RESULTS USE

BATTLE'S *Disinfectants*

FLUID—POWDER—SOAP.

Battle, Maltby & Bower,
LINCOLN.

BATTLE'S VETERINARY OINTMENT

(*Containing 20 per cent. of BATTLE'S DISINFECTANT FLUID*)

Will destroy Warbles on Cattle, Heals all kinds of Wounds, Old Sores, Sore Teats, Saddle Galls, Ulcers, Skin Diseases, Mange, Ringworm, Sandcrack, Thrush, Itch, &c.

Price 2s. per 1-lb. Tin.

INSURE YOUR HORSES AND CATTLE

With the
IMPERIAL LIVE STOCK INSURANCE ASSOCIATION, LIMITED.
Established 1878.
Head Offices:—PALL MALL EAST, LONDON, S.W.

Hunters, Stallions, Carriage, Saddle, Farm, and Trade Horses insured against Death from Accident or Disease; Mares insured for Foaling and Loss of Foals.

Claims Paid Exceed £100,000.

Prospectuses and full particulars forwarded, post free, on application. B. S. ESSEX, Manager.
Agents required.

JAMES BLAKEWAY, M.R.C.V.S.,

STOURBRIDGE,

SPECIALIST

IN THE

CASTRATION OF RIG HORSES.

—:o:—

Terms, and Testimonials from many well-known Veterinary Surgeons and others, on application.

VETERINARY HYPODERMIC PELLETS.

SPECIALLY PREPARED BY

C. J. HEWLETT & SON.

These elegant compressed pellets are invaluable for veterinary hypodermic medication where portability and accuracy of dosage are of great importance.

A small case filled with tubes, containing the undermentioned powerful drugs, in the convenient form of pellets will be almost equivalent to an ordinary medicine-chest, and will be ready for any emergency.

We prepare the following pellets:

		PRICE
ATROPINE	$\frac{1}{5}$ gr.	per tube -/6 each.
COCAINE	1 gr.	„ 1/- „
MORPHINE	1 gr.	„ -/6 „
MORPHINE	2 grs.	„ 1/- „
MORPHINE	1 gr.	per tube 1/- each.
ATROPINE	$\frac{1}{5}$ gr.	
PHYSOSTIGMINE (Eserine)	1 gr.	„ 4/6 „
PILOCARPINE	1 gr.	„ 4/6 „
STRYCHNINE	$\frac{1}{2}$ gr.	„ 1/- „

Each tube contains 6 pellets.

Our New Hypodermic Pellet Case, fitted with One Tube of each of the above Pellets, and Silver-plated Hypodermic Syringe (2 drm.) with Two Needles, Glass Pestle and Mortar, &c., complete in handsome Leather Case, **£1 15s. 6d.**

INTRODUCED BY

C. J. HEWLETT & SON, WHOLESALE DRUGGISTS,

40, 41, & 42, CHARLOTTE STREET, LONDON, E.C.

ESTABLISHED 1832.

MACKEY'S ECZEMATINE

(FLUID DOG SOAP)

This compound, prepared by a new process, excels all others in the rapidity of producing a lather and its unrivalled cleansing properties. A daily application will be found a complete cure for Mange, Eczema, and all kindred Skin Diseases, and it thoroughly destroys all Fleas and Parasites. The ingredients are not only perfectly harmless to animals, but especially tend to promote a generally healthy condition. It leaves the coat thoroughly clean and sweet, with a softness and glossiness unattainable by any other compounds. Eminent members of the profession have used Eczematine with marked benefit in Mange, and have testified to its superiority over soft soap and other cleansing agents. Price 1/- per lb.; Special Quotation for Quantity.

"Any one who has had to wash a long-haired animal must have felt how objectionable soft soap is. No amount of rubbing and washing seems to thoroughly free the coat from its sticky and matted condition. Very little better is hard soap, as the amount of muscular exertion required to make a good lather is excessive. Both these disadvantages are obviated by Mackey's 'Eczematine.' For washing dogs, or horses' manes, we can strongly recommend it. It forms a splendid lather, has no excess of alkali, is medicated with a deodoriser and fragrant disinfectant, and leaves the coat clean, sweet, and brilliant. It is an elegant and effective preparation."—*Vet. Record*, April 20th, 1889.

EUCALYPTOL.

A Powerful Disinfecting, Deodorising, and Detergent Fluid. It is Non-poisonous, and will not stain or destroy articles of clothing.

This Fluid contains the active Antiseptic, Disinfectant, and Deodorant properties of the *Eucalyptus globulus* and other allied species, combined with the Disinfectant and Detergent properties of the *Pinus sylvestris* and other species of pine.

During the last few years these trees have acquired a high reputation for rendering localities, previously uninhabitable on account of malaria, wholesome and fit for the dwelling-place of man.

These trees yield large quantities of essential oil, which is stored up in the pellucid glands of the leaves. This oil consists principally of substances of a camphoraceous nature, which have great Antiseptic and Disinfecting properties due to the peroxide of hydrogen produced by their oxidation. In Bottles at 1/- and 2/-; 5/- per Gallon.

EUCALYPTOL DISINFECTING POWDER.

In 1/- Tins; in ¼ cwt., ½ cwt., and 1 cwt. Packages, Packages extra, at 10/6 per cwt.

HORSE BALLS, POWDERS, DOG PILLS, CATTLE DRENCHES, HYPODERMIC INJECTIONS,

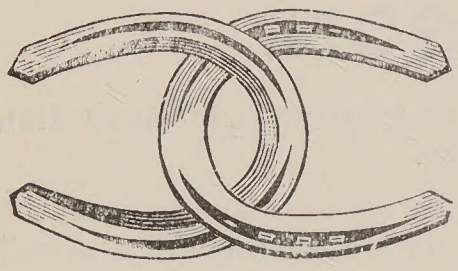
And all Veterinary Preparations. Makers of Special Improved Veterinary Instruments.

PLEASE NOTE CHANGE OF ADDRESS.

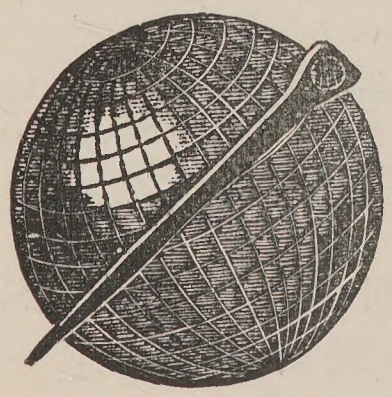
MACKEY, MACKEY & Co., Wholesale Veterinary Druggists,

175, GRANGE ROAD, BERMONDSEY, S.E.

SHOE
TRADE MARK.



NAIL
TRADE MARK.



THE UNITED
HORSE-SHOE AND NAIL COMPANY
LIMITED,

CUBITT TOWN, LONDON, E.

MANUFACTURERS OF HORSE-SHOES AND NAILS TO THE BRITISH ARMY.

ALSO OF

The Rowley Patent Horse-shoes and Iron.

MANUFACTURERS OF

PATENT STEAM HAMMERED HORSE, MULE & PONY SHOES

Which may be advantageously applied cold.

THE PATENT BRIGHT

READY-POINTED "GLOBE" HORSE-SHOE NAIL.

Contractors to all the Chief Tramway and Omnibus Companies in the United Kingdom.

PRICE LISTS AND TERMS ON APPLICATION.

LANOLINE VETERINARY OINTMENT.

Lanoline is the nutrient substance of all keratinous tissues; it exists naturally in the skin, hair, and hoofs of all animals, and is miscible with water, which cannot be said of other fats.

As an ointment for the diseased hoofs of horses, Lanoline is the best application for promoting a healthy condition of the entire hoof; in cases of cleft, loose sides, wind-galls, and bound or brittle hoofs it affords natural elasticity to the tissues, and when used daily for greasing the healthy hoofs affords the best means of keeping them in a truly natural condition.

Applied to diseased conditions of the hide, it is a certain aseptic application; parasites are unable to penetrate a thin layer of Lanoline ointment, and according to Professor Gottstein, "this is an excellent means of preventing suppuration from a wound, inasmuch as germs, the promoters of purulent sores, are unable to pass through the protective layer of ointment." It also acts as a nutrient in promoting the growth of hair upon bald patches, and gives a natural suppleness to the hide.

Lanoline Veterinary Ointment exerts a softening influence upon hardened leather, making it elastic and smooth. The ointment should be rubbed into the leather with cold water (the Lanoline having a strong affinity for water) and without drying.

LANOLINE VETERINARY OINTMENT

Is supplied to the Profession at 1/- per lb.

BURROUGHS, WELLCOME & Co.,

Snow Hill Buildings, London, E.C.

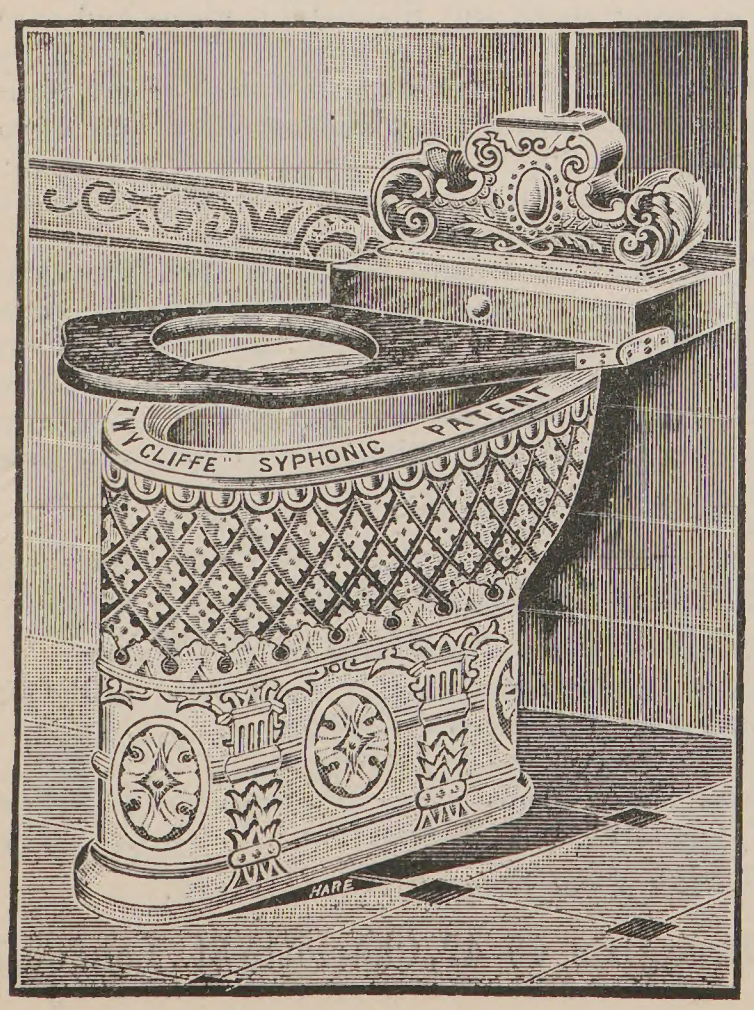
PERFECT SANITATION, HEALTHY HOUSES

OBTAINED BY ADOPTING THE

TWYFORD'S "TWYCLIFFE"

PATENT PEDESTAL SYPHON W.C. BASIN.

GUARANTEE sent with each Basin.



RECOMMENDED AND SPECIFIED BY ARCHITECTS AND SANITARY ENGINEERS.

A new departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.

—:o:—

ADVANTAGES CLAIMED FOR THE "TWYCLIFFE" SYPHON.

Perfect safeguard against sewer gas and the evils arising therefrom.

Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.

Practically noiseless in action.

Simple in construction, reliable in action.

No complicated mechanism to get out of order.

Easily fixed as an ordinary basin.

A high-class article of superior material, workmanship, and construction.

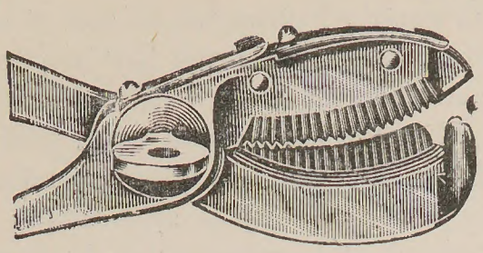
—:o:—

Can be obtained from all leading Sanitary Engineers & Plumbers.

IMPROVED "RELIANCE" CASTRATOR,

PATENTED.

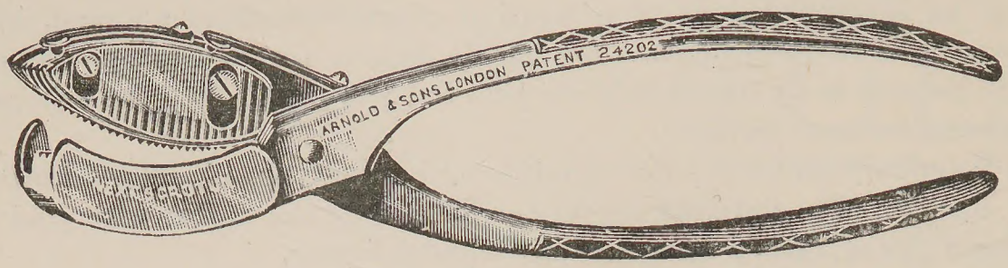
NICKEL-PLATED, IMPROVED WITH TWO SPRINGS, £2 2s. Od.



Vide "Veterinarian," March, 1896.

Vide "Veterinary Journal," March, 1896.

Vide "Veterinary Record," February 22nd, 1896.



NICKEL-PLATED, IMPROVED WITH TWO SPRINGS AND MOVEABLE PLATE, £2 5s. Od.

MANUFACTUERED BY

ARNOLD AND SONS,

Veterinary Instrument Manufacturers by Appointment to Her Majesty's Government, The Honourable Council of India, The Crown Agents for the Colonies, Foreign Governments, Royal Veterinary College, &c. &c.,

26 & 31, WEST SMITHFIELD, AND 1, 2, & 3, GILTSPUR STREET, LONDON, E.C.

(Opposite St. Bartholomew's Hospital.)

Telegraphic Address—"INSTRUMENTS, LONDON."] Established 1819. **[Telephone No. 6518.**

LIN. SAPONIS c. MYRRH. et BENZOIN.

(C. J. HEWLETT & SON.)

This excellent Compound was introduced by us to the Veterinary Profession in 1887, and quickly established itself as a favourite general Surgical dressing. It is now very largely employed by many practitioners all over the country, as a simple dressing for cuts and bruises. It can be applied with marvellous success to gangrenous and ill-smelling ulcers and sores, as its healing and antiseptic qualities prevent discharges from becoming fœtid, and rapidly improve the condition of the wound. Applied in the undiluted state to a wound or cut, it acts as a powerful styptic, stopping the hæmorrhage and forming a nice protective to the wound. When mixed with water it forms an elegant creamy liquid which has marked antiseptic and deodorant value, whilst it has the advantage of not being recognised by officious stablemen and others, who are always ready to imitate successful veterinary preparations.

As it is non-poisonous it is preferred by most Practitioners to Carbolic Acid. The excellent character of this Liniment and its popularity amongst experienced Veterinary Surgeons has caused several imitations to be offered. We regret to have to caution the Profession against these preparations, which when diluted with water often precipitate the resins and present a most unsightly appearance. The distinctive feature about **Hewlett's Lin. Saponis c. Myrrh. et Benzoin** is, that whilst containing the full proportion of ingredients, it presents on dilution with water a delicate creamy and uniform emulsion.

Price 3/6 per lb.; Wine Qrts. 3/0.

VETERINARY SPECIALITIES

Introduced and Prepared only by C. J. HEWLETT & SON.

MIST. TONICA CONC.—The Recognised Tonic by the Veterinary Profession . .	3/6 per lb.
OL. CANTHARIDES FORT.—Highly recommended as a General Vesicant . . .	4/0 „
VETERINARY CHLORODYNE.—A Powerful Sedative, Antispasmodic, &c. . . .	5/0 „
PULV. IODOFORM CO.—A Specific for Nasal Gleet, Catarrh, &c.	2/0 per oz.
PAROPHYROXIA.—A Specific for Colic, Tympanites, and Constipation	4/0 per lb.

Price Lists to the Profession Post free on Application.

C.J. HEWLETT & SON, Wholesale Druggists, 40–42, Charlotte St., London, E.C.

THE

VETERINARIAN.

Founded 1828.

VOL. LXX. No. 832. APRIL, 1897. Fourth Series, No. 508.

Original Papers.

MALARIAL FEVER IN HORSES IN INDIA, OR "SURRA."

By Veterinary Captain R. W. Burke, F.R.C.V.S., A.V.D., Corresponding Member of the Italian Veterinary Academy, London (late India).

I was asked the other day by a distinguished member of the British medical fraternity whether "surra," or malarial fever in horses, corresponded in any way with the disease known by the same name in mankind? To this question there was but one reply. The views expressed some years since by myself on this point have become all but universally accepted, and are amply sustained by the latest medical and scientific research. I may say at once that the views I have long held and have frequently expressed regarding, for instance, the greater prevalence of "surra" during the rainy season in India correspond entirely with the views of human malarial fever given in the *British Medical Journal* of November 21st of last year (*vide* p. 1501). I have noticed for many years that the outbreak of enzootic forms of the disease in horses and ponies in India coincides with heavy rainfalls, together with the effect of the subsequent intense heat upon the inundated and sodden soil. And if it becomes prevalent among Government horses in batteries of artillery or regiments of cavalry, there is simply nothing for it but the earliest possible removal of

these regiments or detachments, as the case may be, into camps or to healthier grounds.

This is a question, of course, upon which, until very recently, there has been considerable divergence of opinion. To Mr. Evans, of the Indian Veterinary Department, belongs the credit of having first noted the presence of parasites in this disease. But he did not identify the malady. The late Mr. J. H. Steel held that surra was a form of relapsing fever in the horse. Other eminent practitioners who have made a study of the disease have held, together with certain well-known bacteriologists, that there is nothing in common between the two affections. Even so eminent a scientist as Dr. Vandyke Carter recognises no identity between the surra parasite and the spirillum common to relapsing fever in man. Surgeon-Major Ranking, in the *Veterinary Journal* for June, 1891, contends that surra is in fact "ague in the horse." As a matter of fact, his views are of very considerable importance, especially when it is noted that he at least considers no other deduction possible. Evidence adduced by him as to the identity of the *Plasmodium malariæ* and the *Bacillus malariæ* in man is, in his judgment, an additional proof of the views adopted by him. Dr. Ranking gives further reasons for the belief that the general view of the plasmodium being considered a protozoon is incorrect, and quotes facts in support of his view that surra and ague are equivalent diseases. From the point at which Surgeon-Major Ranking took up the investigation of this subject, he has rendered considerable service to science in helping to determine the nature of this disease. But it must be noted that the diagnosis on which he relied was that of veterinary surgeons, who declared it to be "surra," a conclusion which was "borne out by its fatality;" and though we may not be able to quite fully subscribe to Dr. Ranking's opinion that its fatality necessarily allies it to ague, I find no reason to dissent from his general view. For he so well supports my own opinion, published in the *Veterinary Journal* for July, 1890, that, as a matter of fact, in adopting the conclusions of Surgeon-Major Ranking we are but reaffirming our own.

We may even go farther back, for the parasitic nature of the disease and its relation to ague paroxysms was not altogether new even in 1890. In my small work on 'Equine Diseases in India,' published as far back as July, 1887, I was able to show that the parasites in intermittent fever of the horse very closely resembled—if they were not identical

with—those described by Laveran as present in human blood during an attack of ague. Valuable confirmatory evidence is yielded by an article in the *Lancet*, June 16th, 1888, from the pen of Dr. Carter, who found that in ninety-three instances of malarial disease in man these organisms were present; and, as we had occasion to show in the *Veterinary Journal* of March, 1890, these same organisms are present in remittent and intermittent fever in the horse. It may be further stated that the same view is upheld by the German professor, Dr. Klebs (*Centralb. f. Bakt. u. Parasit.*, No. 5, vii, 1890), who acknowledges that in those cases in which he observed flagellate Protozoa in very large numbers, there was a repeated occurrence of febrile states, generally in intermittent forms; and in the *British Medical Journal* for February 15th, 1890, it is also pointed out that "the existence of Protozoa in the blood in malarial or intermittent fever is undoubted," and Dr. Klebs assumes that in those cases in which he noted the presence of monads there was a constant recurrence of febrile states, generally in the form of intermission.

There appears to be, therefore, no reason to doubt that surra in horses is in many respects practically identical with malarial fever in man. The marked anæmic conditions observed both *ante* and *post mortem*, the leucocytosis, fatty degeneration of the muscles, liver, spleen, and other organs, the general hæmorrhages, and the chronic state of fever, which end in death in so many cases, leave no doubt whatever as to the true nature of the disease.

It is well that these facts should be finally settled, as all progress must be retarded until then. As soon, however, as the precise place and character of the disease is determined, progress in pathological study and treatment will at once rapidly advance; very important, for instance, is it to determine not merely the question of the presence and character of the parasites, but their precise significance and the part they play in the production of the disease. The pathological changes which take place in the various organs and tissues of the body, as the result of surra, may be characterised in a word as degeneration due to imperfect nourishment. In accordance with the native significance of the word, in surra the blood is rendered unfit for purposes of proper nutrition, and degenerative changes of a fatty nature are set up which lead in many cases to disintegration of portions of the imperfectly nourished tissue. When organs and parts so weakened by starvation are distended with impoverished

blood which they cannot utilise, sloughs result from gangrene of the imperfectly nourished tissues, as evidenced in the ulceration of the stomach, &c., noted in this disease. The ulcer itself once formed suffers from nutritional defect, owing to impoverished condition of the blood, which prevents the formation of resisting tissue around it, and often leads to perforations. The alimentary mucous membrane in general will be found to be in an anæmic condition, with petechiæ and ulcerated spots, the result of disintegration and atrophy. Although the tissues present a blanched appearance, there is a large deposit of fat all over the body, especially noticeable under the skin. This gives to the tissues a peculiar jaundiced appearance, which is shown under the microscope to be due to the deposition of fat globules. The lymphatic glands throughout the body are more or less swollen and œdematous. Very often there is acute dropsy, with no other *post-mortem* lesion save extreme anæmia and yellow staining of the tissues due to fatty degeneration. In certain examinations made by Mr. Steel the heart was found to be the seat of marked fatty changes, and this is corroborated by the observation of Fröhner and other Continental writers.

The main problem, however, remains. Has surra any identity with any disease in human beings? and if so, to what disease is it allied in its main points? And what are the points in which it resembles any cognate disease in man? These are questions which may take some time finally to determine, but we think there can be no doubt that rapid progress towards a satisfactory solution of these important questions is now being made. At all events, the fact that the general names of ague, intermittent fever, and malaria are given to a disease produced by a common cause, is a step forward, and should materially assist our inquiry into the pathology of this disease, both in mankind and in the lower animals.

These conclusions are considerably strengthened when we come to study the question from a bacteriological point of view. Among the parasites found in the blood of the horse, the most remarkable is the monad known in India as the surra parasite, the disease with which the organism is associated being termed "surra," or pernicious anæmia (*vide* my book 'Tropical Diseases of the Horse,' 2nd edit., 1888). Valuable evidence of the influence of the surra parasite in the production of this disease has lately been advanced. At the same time it should not be forgotten that the same parasite, or at least an organism identical so

far as the form is concerned, is found in the blood of sewer rats, camels, &c., apparently in perfect health. Not much, however, is to be inferred from this, for it is highly probable that these animals, as well as the horse, are likely to suffer from the ravages of this generic disease.

Indeed, it is a well-known fact, that this is the case. For instance, Megnin (ref. 'Thierarzt.,' 1882) describes a symptomatic type of the malady seen in dogs and cats, caused by an ankylostome producing anæmia, and which is without doubt a similar disease to the symptomatic form of anæmia in man. Another German writer, Johne ('Sächs Jahresbericht,' 1884), saw the same disease in a dog as a secondary affection following a suppurative form of the disease; and Imminger, *Wochenschrift f. Thierheilkunde u. Vichzucht,* 1886, observed enzootic outbreaks of it in cattle. Fröhner, again,* admits that he has also seen this disease in the horse; and Freidberger and Fröhner (*Lehrbuch der spec. Pathol. u. Therapie der Hausthiere,* vol. ii, 1887) describe an outbreak of it in this animal in which the characteristic parasite only was found.

Coming back again to the question of the identity of the disease in animals and man, it is interesting to note that Dr. Vandyke Carter, of Bombay, writing on 'Infective Diseases of the Rat and Equines in India,' 1888, a subject of supreme interest at this moment, by-the-bye, shows that malarial fever in man is of the nature of hæmatozoic affections. And he has ascertained with satisfaction to himself that, in remittent fever in man, the blood contains parasites which in their morphology and general features are identical with the parasites of surra in the lower animals. On the other hand, Professor Klebs, of Zurich, has found enormous numbers of the flagellate monads in the blood of patients suffering from influenza—a very probable contingency, we should have supposed. Many of the mistakes that have arisen in regard to the parasite have occurred through an imperfect acquaintance with its life-history, and are largely accounted for by McCurdy's description of the organism peculiar to Texas fever, which is, after all, only another form of the disease we are discussing here. He says, "The germ of this disease may be said to be of the bacilli species and the facultation type, which assumes various forms during life. The ovoid form is particularly noticed, but it appears that this is only a

* 'Ueber perniciöse Anämie beim Pferde,' von Eugen Fröhner, Berlin, 1886.

transition stage which terminates finally in the mature form. If cultures are prepared from material containing the ovoid forms, they elongate, become surrounded by a gelatinous aureola, and break off into two short rods, or double and single bodies. The spherical ovoid forms and short rods are found both in the liver and fluids in zoogloœa. At the ends of some germs flagella are noticed, which probably give them the slow bending, twisting motion that is seen in so many cultures. Dr. Theobald Smith,* writing on the same subject, observes that, in addition to the spherical forms, ovoid forms of the parasite are not uncommon. Very often they occur in pairs within the same red corpuscle, and a still rarer pear-shaped form is sometimes encountered in stained preparations of the blood, and these forms also invariably occur in pairs, one corpuscle being occupied by a single pair; and then, after some interesting remarks about the parasite, he shows that the same organism has been noted by Fröhner † "in pernicious anæmia among horses in Germany where two, and sometimes even two pairs were witnessed within the same corpuscle."

It is scarcely necessary to pursue the subject further. Sufficient has been said to show that the characteristic parasite in malarial fever in man is identical with that invariably present in surra in the horse and in other animals. And the various forms assumed by the parasite at different stages of its life-history quite sufficiently account for many of the mistakes that have arisen from time to time. One thing at least should be said: care should be taken by investigators, at the present time and in the future, not to trail the red herring of a fancied discovery across the path of solid progress, in order to win the fleeting *kudos* of passing official commendation. We should proceed on the solid lines of well-founded facts. And the more this is done, the more deeply convinced I am, at all events, that surra in the horse and malarial fever in man are only various forms of one and the same disease.

Coming now to the disease itself, we observe that in India surra occurs most commonly just after the rainy season. There may be many predisposing local conditions, such as susceptibility to climate, season, &c., that may affect the greater prevalence of the disease in animals in different outbreaks. It is not always easy, moreover, to exactly diagnose the disease. There is a variety of it, for

* *Veterinary Journal*, March, 1890.

† *Archiv f. Wiss. u. prakt. Thierheilk.*, Bd. xii, 50, Heft 6, 1886.

instance, as every Indian veterinary officer will know, which is never acute from the beginning, nor even subacute. Yet it becomes truly chronic, and may, and indeed does, often last for months, occasionally intermitting during its course. Animals suffering in this way are placed frequently on the sick list for debility, indicated by anæmia of the mucous membranes, a weak and readily excitable pulse, swelling of the limbs, &c. It does not tend, either, to simplify things when we note that the appetite remains as good throughout the course of the disease as when the animal is in perfect health. Numbers of rejections by special casting committees are, I believe, entirely attributable to the cause I have just indicated. And this is one of those facts which should impress upon us the great importance of being able accurately and promptly to diagnose this most deceptive malady, not only for the purpose of relieving and saving useful and interesting animals, but also to save Government much needless expense.

In other cases the symptomatic course of the disease is very clearly and definitely marked, the first thing of course being the recurring elevation of temperature, which is so clearly observed in the human subject. In most cases also the urine is albuminous, and contains much hæmoglobin set free by the destruction of the red corpuscles. In spite of an almost voracious appetite, debility will appear progressive in its character. This is a common symptom, and there is no need to lay stress upon it. In his report on an outbreak of surra among ponies in the Berars, Veterinary Surgeon Cooper states that the appetite is seldom lost, the animal continuing to feed up to the very last,—a fact which Professor Fröhner confirms, having noticed it in the German type of the same equine disease.

Very often the disease is marked by an acute and chronic form of paralysis, as has frequently been noted by veterinary practitioners in India and Burmah, as well as by Fröhner in Germany. We have also noticed pronounced stringhalt, muscular tremors, crossing of the legs, due to some effusion of blood on the spinal cord or on particular nerves. And it is interesting to observe that Mr. Thomas Bowhill, F.R.C.V.S., records the same symptoms having been witnessed by himself in Southern or Texas fever (*Veterinary Journal*, July, 1890).

Other incidental symptoms may also be noted, such as dragging of the hind toes, the result of muscular paralysis, a fact which is well authenticated by Veterinary Surgeon

Irwin, of Queensland, in the *Veterinary Journal* for October, 1888.

Whether it is correct to describe the disease as invariably fatal, as has no doubt been done, may be problematical; but whether or not, there is no disease in which the fatality is so high as in pernicious anæmia.

The most important feature of the disease is that there is no history of a definite onset, and that the condition is always progressive. Usually, after several relapses the animal succumbs, the average duration of the disease being not less than two months, as also in the human subject. Naturally weak animals succumb more quickly than stronger ones, and in some outbreaks the progress of the disease is very rapid, not exceeding a fortnight, and in some cases terminating in a week or even less.

In regard to treatment, I attach much importance to arsenic, pushed, as Veterinary Surgeon Butler observes, "as far as possible."* This observation is worth noting when we remember that arsenic is the only remedy of any value in cases of pernicious anæmia in the human subject. In a recent paper by Professor Osler, in the *Therapeutic Gazette* of the same year, he states that in all cases of pernicious or essential anæmia there was no case of recovery in which arsenic did not form the basis of treatment. But I have found frequently that hypodermic injections of quinine have a powerful effect in reducing temperature during the crisis. "I know of nothing, indeed, that has such an antipyretic power as sulphate of quinine, for it decreases the temperature, retards tissue change, and prevents or modifies periodicity" ('Tropical Diseases of the Horse,' 2nd ed., 1888, pp. 49, 50). Dr. Ranking also observes that "quinine in full doses appears to control the disease, supplemented by general measures to combat the anæmia and weakness consequent on prolonged illness, chiefly by milk, iron, and arsenic" (*Veterinary Journal*, June, 1891). And though much has been said and written to the contrary, I hold that, provided prompt measures are adopted, and the disease is treated by quinine, arsenic, iron, and other tonics, by changing the water and making some variation in the location of the animals, great benefit and even absolute removal of the disease may be secured.

In his report on surra dated 1895 (*vide Veterinary Journal*, March, 1896), Dr. Lingard, Special Commissioner of the Government of India, lays special stress on the

* *Quart. Journ. of Veterinary Science in India*, 1888.

treatment of surra by arsenic. The Doctor writes as if this method were new to him, whereas the merest tyro knows that this is our sheet-anchor in cases of this kind, as may easily be gathered from the literature of the subject (*vide* my 'Tropical Diseases of the Horse,' 3rd ed., p. 39; the *Quarterly Journal of Veterinary Science in India*, 1888; and Dr. Ranking's article in the *Veterinary Journal*, June, 1891). I quite agree with Dr. Lingard that arsenic, though of great value, must be cautiously used, or gastric ulceration will occur, and the same confusion will arise as formed the subject of a discussion some years since at the Royal Academy of Medicine for Ireland (*vide Lancet*, March 10th, 1888, p. 474).

It will be found also that Dr. Ranking's method of treatment by quinine in full doses (*vide Veterinary Journal*, June, 1891) was anticipated in my work above quoted (2nd ed., 1888, pp. 49, 50).

But prevention is better than cure. Whatever may be the characteristic poison in malaria—and the theories suggested are numerous—the great point is to avoid, as far as possible, all those conditions of soil and climate which it is well known tend to promote an outbreak. We know, for instance, that it is most prevalent in tropical and subtropical regions; and that even there, it is more prevalent at certain seasons and under certain given meteorological conditions. A high temperature increases the frequency and severity of the attack, while in those places where the summer temperature is from 58° to 60° it vanishes altogether. As we have shown above, the rains in tropical countries exercise considerable influence upon it. Wind, too, carries the infection sometimes for three miles or more, but it also prevents very largely the vertical ascent of the "poison." As a measure of practical precaution, therefore, I should recommend the avoidance, as far as possible, of all alluvial soils as camping grounds or resting-places, as well as of all old ditches, tanks, and estuaries, deltas; sands, clay, granitic or trap rocks, and particularly all places where vegetable soils are largely distributed, as in jungles, road-sides, and the Indian *terai*, where at the close of the rainy season rapid fermentative changes occur, full of malarial dangers both to man and beast. It is almost impossible, however, to prevent the dissemination of this disease in India so long as the present careless system of grain transfer on pack animals prevails; Government should insist on some well-regulated system of inspection and control. Wells should be dug at

regular intervals along the road, with plenty of side troughs for animals where fresh water would be available, so that it would be no longer necessary for the poor animals to be compelled to drink the pernicious fluid which they may find casually by the road-side—living water indeed, it may be called, for it is covered by a green oozy film, and in a condition of most poisonous fermentation. The removal of all animals suspected of infection, however, to a milder climate or to the hills is always desirable; and lastly, inoculation with a preparation made from surra parasites, artificially weakened, suggests itself as a most important means of imparting to all animals specially exposed to surra attacks a permanent immunity against the disease.

CYCLOPIA.

By A. E. Mettam, B.Sc., M.R.C.V.S.

Some years ago, in the *Journal of Comparative Pathology and Therapeutics*, I described a dissection I made of an agnathous lamb that Professor McFadyean had kindly put into my hands, and I there endeavoured to trace the anomaly as due to an arrest of development, more especially as pertaining to the branchial clefts of early embryonic life. In this line of treatment nothing new was attempted, because most departures from the normal as affecting the newly born may be due either to transposition of tissues or organs, or to arrest in the development or suppression of one or of both. The question of anomalies or abnormalities as affecting tissues or organs, or of monsters when the body itself is involved, belongs to pathology directly; but frequently an anomaly as we view it, in comparison to that we find most common, and which we describe as normal, may be a primitive condition still persisting, and as such is considered as an example of atavism.* A monster results frequently from an error in development, such as the suppression of parts, or it may be of fusion of several that should remain distinct; and if the condition is due to suppression, then it may be explained by a knowledge of the developmental history. For a long time the ætiology of malformations has been sought for; what are the causes or forces that bring about the departure from the normal have been made the subjects of numerous experiments, so much so that experimental em-

* More correctly, of recapitulation.

bryology is a most important branch of the science of development. True it is that the ova of the lower Vertebrates have been chiefly utilised, but the aim has been to determine in many cases the origin of monsters, and the conclusions of the experimenters must be respected. Most have heard of the work done with the end in view of discovering what determines sex, and Yung showed that abundant nutrition (in tadpoles) favoured the origin of females. Similarly other investigators have observed the results following "shaking the egg, tapping, partial varnishing, unequal warmth, slightly raising or diminishing the temperature during incubation, erect position of the egg," and find that they may "produce double monsters especially, but only if applied within the first forty-eight hours of incubation. In other cases the interference gives rise to a derangement of the embryonic vascular system and deficient blood formation, which causes further impairment of the nutrition of the embryo, and leads to numerous malformations." *

Experimental evidence, therefore, leads us to believe that in the earlier stages of development, forces acting upon the fertilised ovum induce a change or changes, and the result is a monster; and similarly it has been stated that the access of more than one spermatozoon into an ovum may produce a like result. It is to be observed, however, that changes in the embryo are not alone the causes of monsters, but diseases of the fœtus itself may so alter the normal course as to give origin to a creature that departs considerably from the character of its parents. "Œdematous effusions into the membranes and tissues of the developing embryo give rise to formation of fissures, by preventing the closure of the various invaginations and involutions of the layers of the embryo. Adhesions between embryo and amnion lead to deformities, to the formation of fissures, and even to separation of some parts from the body" (*loc. cit.*).

It will be granted, then, that the production of monsters is of interest from the pathological point of view, and that in many cases the appearance exhibited by the newly born may be explained by the condition of neighbouring parts, such as by the fœtal envelopes, the cord, or the maternal structures; but the embryologist frequently has an explanation to offer, and not necessarily similar to that of the pathologist. A monster may be produced by the processes

* Thoma, 'Text-book of General Pathology and Pathological Anatomy,' vol. i, 1896, translated by A. Bence, pages 174, 175.

of development not following in proper sequence, or by parts failing to arise from certain well-known tracts of cells that experience has taught us to associate with their origin, and thus an embryo or fœtus may be a monster almost from the beginning. Hence we may consider a monster as primary if it is produced by an inherent defect, or of secondary origin if the change has been induced by external causes, such as defects in the construction of the mother. We cannot here consider, even if they are known, what are the forces that act upon the ovum and produce the primary monster.

The specimen which I describe below was sent to me by Mr. A. S. Wallace, M.R.C.V.S., of Arbroath, to whom I desire to offer my thanks. Mr. Arch. Hodder kindly sketched the subject for me.

Appearance of Head prior to Dissection.—The head from a lamb, apparently of the usual size and at term, was flattened laterally and covered with skin carrying long wool or hair. The lower jaw is normal, and incisor teeth are seen still beneath the mucous membrane, and not yet erupted ; the central pair large, the first and second intermediates smaller, and occupy their usual position. The upper jaw, or that part corresponding to the premaxillæ, nasal bones, and portions of the superior maxillæ are undeveloped, and its place is taken by a flexible process of

soft tissues in shape resembling the beak of a bird. No cartilaginous pad is to be seen, and the mucous membrane covering the roof of the mouth, and forming the soft tissues of the hard palate, has rudimentary palatine bars, no openings for Stenson's canals. The hard palate is triangular in shape with the apex forwards, and terminating about three quarters of an inch from the thin upper lip. The upper lip is pointed, and there are no anterior nares.

One palpebral fissure bounded by an upper and a lower lid. The lower lid is notched in the middle, and beneath the eye inwards from the notch are folds of conjunctiva which appear to envelop rudimentary nictitating membranes. The skin and mucous membrane meet at an abrupt line, and the conjunctiva passes almost directly from off the border of the lid on to the cornea. (Two puncta lachrymalia are seen, one on either side of the notch in the rim of the lower lid.) Through the cornea two irides (blue) are to be observed; they meet in the middle line and unite: thus there are two pupils, separated by a mesial partition.

Below the palpebral fissure are two pigmented areas that lead into pits; they are slit-like, and meet in the middle line. (These correspond doubtless to the larmier glands that are found in the sheep and some other ruminants as depressions of the skin below the eyes. Their situation is readily seen in the living animal by the discoloration of the hairs of the face, which often are glued together by the secretion, and in the skull by a depression in the bones of the face beneath the orbit.) The frontal region is protruding.

Dissection of the Head.—The parotid glands were developed as usual, and their ducts crossed the masseter muscles to enter the mouth. The seventh cranial nerve on the face divided into two main branches: one, the inferior, followed the course of the ramus of the lower jaw; the upper division was extended to the soft tissues in connection with the rudimentary upper jaw. The muscles clearly shown were as follows: the masseter, the buccinator, a rudimentary zygomaticus; the levator labii superioris proprius is exceedingly well developed, and unites with its fellow of the opposite side; a square muscle of the chin, levator menti, and an orbicularis oris; a levator palpebræ superioris, and an orbicularis palpebrarum are also present. (In the sheep, besides the masseter, the following muscles are to be found on the face: buccinator, zygomaticus, levator labii superioris proprius, dilatator naris lateralis, levator menti, a square muscle of the chin,

and the orbicularis oris. As compared with the horse, the following muscles are wanting in the sheep: depressor labii inferioris, the levator labii superioris alæque nasi, depressor labii superioris, the dilatator naris superior, inferior, and transversalis.) It will thus be seen that the chief muscle to suffer was the lateral dilator of the nose, and its absence is to be partly accounted for by the non-development of the anterior nares.

Cavity of the Mouth and Pharynx.—The tongue is well developed. The mucous membrane inside the cheek carries numerous papillæ. The opening of Stenson's duct is visible. The soft palate was well developed, and the upper opening of the larynx, the larynx itself, and the trachea were quite normal. The Eustachian tubes and orifices were also normal, as was also the tongue and hyoid bone. There were, however, no posterior nares, but in the region of the naso-pharynx—that is, above the soft palate—was a blind depression. On dissection it was found that teeth were present in the gums, and in the upper jaw the bone carried pre-molars; they extended from one side to the other in front, and the appearance can be described by imagining the palatine processes of the superior maxillary bones to be in part suppressed, and the alveolar borders turned inwards until they meet in the middle line, and in this manner the alveolar borders carrying teeth being made continuous from one side to the other.

Muscles of the Eyeball.—There are superior and inferior oblique muscles developed, and they behave in a peculiar manner. The superior oblique muscle arises by a thin slip from the wall of the orbit just external to the single optic foramen, and meeting with its fellow which arises in a similar fashion, the two muscles blend to form a single fasciculus, which passes over the superior surface of the eyeball. This fasciculus as it approaches the cornea divides, and the two muscles thus again separated, divaricate and pass to their insertion into the sclerotic. The superior oblique muscles, indeed, in the outline of their course correspond to the Greek Υ. The inferior oblique muscles have a similar disposition, their origins are deeper within the orbit than normal. Two superior recti, two inferior recti, and two external recti muscles are present. The muscles, therefore, of this eyeball are those of two eyeballs, less the two internal recti, which are necessarily not indicated, owing to the fusion. The musculature, therefore, corroborates the opinion that the eyeball has resulted from

the union of a primitive pair; the two irides indicate the same thing.

The Brain.—The superior longitudinal fissure is absent, and consequently the cerebrum is not divided into two hemispheres. One ventricle alone is present, and is large and contains much fluid; the roof of the ventricle is thin. Cerebellum, medulla oblongata, pons Varolii, and spinal cord to the naked eye are normal. The base of the brain was carefully examined, and more especially the origins of the cranial nerves. Nothing of importance was seen as regards the majority of these, but concerning the first, second, and fifth nerves we have something to say. There were no olfactory bulbs, and consequently no olfactory nerves. No provision had been made in the brain case for the olfactory region. There was no cribriform plate, but projecting into the orbit was a pointed spicule of bone that doubtless corresponded to a rudimentary perpendicular plate, and which if developed and the eyes had not fused would have occupied the mesial plane as in the normal skull.

As to the second nerve, there was only one optic foramen and one optic nerve. The optic chiasma was present as well as optic tracts converging to it, but the chiasma only gave origin to one nerve-trunk. The single nerve may have resulted from fusion of the usual pair.

Upon the superior root of the fifth nerve was a large ganglion (Gasserian), and of the divisions of this root the ophthalmic and the inferior maxillary or mandibular were large. The superior maxillary division appeared to be a branch of the ophthalmic, and left this just as the nerve entered the large foramen which results from the fusion of the foramen rotundum (which in the horse passes the superior maxillary division of the fifth cranial), the foramen pathe-ticum (which passes the fourth cranial), and the foramen lacerum orbitale (which passes the third and sixth cranial nerves, and ophthalmic division of the fifth nerve). The small size of the superior maxillary division of the fifth nerve is to be explained by the diminutive upper jaw, to the structures of which the nerve is sensory. Below the single orbit and on either side of the middle line an infra-orbital foramen was present, and through it a nerve-filament the thickness of a thread emerged.

From the foregoing description it will be observed that the condition is due to the suppression of certain soft structures and portions of the skeleton. The following are at the most rudimentary, some are without doubt absent. Portions of the frontal bones, the ethmoid, the

nasal bones, the premaxillæ, and portions of the superior maxillæ, vomer, and turbinated bones. The palatine bones are also partially suppressed as well as the lachrymals. Indeed, portions of the face and cranium included between the eyeballs of normal subjects are wanting, and also portions of the face below the orbits. The two eyeballs are fused. There is only one optic nerve. No olfactory epithelium, nerves, or portion of cerebrum corresponding are developed. The respiratory portion of the nose is wanting, although that portion of this tract arising from the primitive fore-gut or œsophagus is quite normal. "The division of the fore-brain into two hemispheres is often absent, and the cerebrum appears as a single cyst wall (*cyclencephalus*), surrounding a more or less markedly dilated ventricle. In slight degrees of this disturbance two eyes are formed, very closely approached to each other, and lying in a common orbit (synophthalmia), or even partially fused." "If the olfactory bulbs are also absent, this may be termed *arhinencephalus*, as suggested by Kundrat." "According to him, the absence of the olfactory lobe is associated with rudimentary development of the nose, defects in the intermaxillary (premaxillæ of domestic animals) bone, and the nasal septum, median and lateral fissures of the upper lip, fissure of the palate, absence of the olfactory nerves, and abnormal development of the cerebrum."*

It is of interest to note, although I am unable to say if the specimen we are discussing showed similar anomalies, that, according to Thoma, "malformations of other organs are frequently found at the same time; anomalous development of the heart and great vessels, synotia, auricular appendages, umbilical herniæ, defects of the diaphragm, and supernumerary fingers and toes" (pp. 218, 219).

"Cyclencephalus and arhinencephalus arise from malformations of the anterior part of the embryonic brain," and it may be of interest to see how these malformations arise, and how the defects as we have observed them in our specimen are produced.

The bones which are included in this anomalous condition are derived for the most part (the ethmoid is the exception) from membrane, and hence they will be moulded upon the various structures lying beneath the bone-producing tissue.

Any interference, then, with the development of the respiratory part of the nose will lead eventually to an anomalous condition of the bones covering this part, and

* Thoma, *loc. cit.*

if the development is arrested we may assume the bones themselves will be wanting. The nose is first indicated by two dimple-like depressions, that are known as the olfactory pits. These pits deepen and soon come into relation with the mouth. "Each of them develops a furrow, which runs downward to the upper margin of the mouth and receives on its outer side the lachrymal groove" (Hertwig). "The pit and furrow become deeper, owing to their margins protruding outwards as ridges and forming the outer and inner nasal processes." The inner ridges form not only a partition between the olfactory pits, but also help to form the middle of the roof of the mouth. The outer nasal processes form a ridge separating the eye from the organ of smell, and furnish the material for the formation of the lateral walls of the nose and the alæ. Owing, however, to the connection between the olfactory pit and the mouth, the canal which is developed from this depression of the epiblast takes on another function, and becomes respiratory as well as olfactory. The respiratory function, which we see is secondary as regards its developmental significance, becomes apparently the chief function of the nose, owing to the excessive development of structures that are in connection with the respiratory part of the nose. The turbinated bones and the sinuses of the head are developed at first as folds or evaginations, as the case may be, of the mucous membrane of the nose, and we are aware of the enormous extent such folds or outgrowths attain in the horse. Similarly the foramina in the cribriform plate of the ethmoid are produced by the nerves arising from the sensory epithelium of the olfactory area growing towards and eventually entering the brain.

The olfactory pits are developed upon the frontal process of the embryonic head, and besides the frontal or fronto-nasal process, maxillary and mandibular processes are found which bound the embryonic mouth. The mandibular process is the primitive lower jaw. The outer and inner nasal processes, as mentioned above, are protrusions into the original pits. The inner nasal processes, however, separate the olfactory pits from the septum nasi, and help to form the middle portion of the palate. The maxillary processes provide palatal processes that grow inwards to the middle line, and these with the inner nasal processes complete the palate. It is around these processes thus fused that the membrane forms bone, and the skeleton of the hard palate is laid down. The soft palate is merely an extension backwards of the original soft struc-

tures that are unrepresented in bone, but in which later on the various tissues composing it, such as we find in a dissection, are developed.

The olfactory pit is a depression of epiblast, the same layer of the blastoderm from which brain and spinal cord arise. The cells of the olfactory area become differentiated in a similar manner as those that give rise to the several parts of the cord, and the processes of some (the neuroblasts) grow as nerve-fibres, and pass towards the olfactory lobe of the cerebrum. In this way the olfactory area is brought into relation with the great nerve-centre, and the olfactory nerve-fibres put into connection the brain with the olfactory mucous membrane of the nose, and consequently the nerve-fibres from the olfactory area pass into and not from the brain, agreeing in this respect with the ascending roots of other nerves.

The eye—and by this we mean the essential portion, the retina—is also of epiblastic origin, and develops as a protrusion of the anterior portion of the cerebrum. The protrusion is at first hollow, and speedily becomes invaginated, so as to have a cup-like depression immediately beneath the epiblast. One layer of the invagination is converted into retina. Soon the hollow stalk becomes solid by the further development of nerve-fibres, but not before a branch of the ophthalmic artery has become incorporated in it to form the central artery of the retina. Many of the new nerve-fibres are outgrowths of the retinal cells, like those of the olfactory nerve from the olfactory epithelium, and hence the processes pass into the brain by way of the chiasma and the optic tracts.

From this very imperfect description of the development of the several parts we may theorise as to what parts were suppressed during the development of our specimen. We may state at once that the interference with the normal course of development must have occurred very early. It must have arisen some time about the period when the formation of the fronto-nasal process should have occurred, and the origin of this process must have been delayed or neglected. As a result, the olfactory pits did not arise, and consequently the nasal processes remained undeveloped. This would account for the condition of the upper jaw, which we have shown has no narial passages, no anterior or posterior nares, no olfactory epithelium. Since there is no olfactory epithelium there are no olfactory nerves, and hence the olfactory bulbs could not be discerned. The eyes doubtless began their course in a perfectly normal

fashion, but owing to lack of development of the fronto-nasal process they were driven inwards to the middle line, where they fused; and although both irides are developed, yet it is possible the two retinæ were continuous, and connected to the brain by a single nerve, that has resulted from the fusion of two primitively distinct optic stalks.

THE PREVENTION AND SUPPRESSION OF CONTAGIOUS DISEASES OF ANIMALS.*

By the late Professor Walley, M.R.C.V.S., Principal of the Royal Veterinary College, Edinburgh.

In dealing with this subject it is necessary that we should, in the first place, distinguish between the meaning of the words "Prevention" and "Suppression." The former is only applicable in the case of diseases which do not naturally exist in a district or country, but in reference to which there is a reasonable apprehension of their being introduced; the latter to the actual suppression or stamping out of disease when it already exists.

Further, it would be as well, for the purposes of this paper, to differentiate between what may be looked upon as *Contagious diseases,* what as *Infectious,* and what as *Contagious and Infectious.*

Unfortunately no authoritative or universally understood definition of these terms has ever been arrived at. In the following remarks I shall, so far as is possible, confine the use of the word *contagious* to those maladies which are transmitted only by actual temporary contact, or by prolonged cohabitation of diseased with healthy animals, and also the actual transmission of disease by inoculation, accidental or otherwise.

In like manner I shall confine the use of the word *infectious* to those maladies which are transmitted by indirect means, *e. g.* by the air or by living and dead ferments.

This rule, however, can only be partially adhered to, in view of the fact that some of the diseases are transmissible by both above-mentioned methods. One other prefatory explanation I should like to make is that in dealing with this subject I have no wish to minimise the value

* Reprinted from Jelenté's 'Todományos Munkálatairól.' This is, we believe, the last important paper written by the late Professor Walley.

of purely scientific methods I only desire to show; that we can, by adopting vigorous sanitary measures, effectually arrest the great bulk of the transmissible maladies of animals. In one respect we hold a far more favorable position than does the human sanitarian. Human life is sacred; animal life is only sacred so far as it subserves the purpose of ministering to the well-being and comfort of man.

While we are not able to say that we can absolutely demonstrate the actual cause of every transmissible malady, we are in a position to state that all such diseases are due to a specific vegetable organism. This knowledge enables us with tolerable accuracy to adopt special means for their prevention and suppression, just as the military tactician is enabled to apply with success the principles of war in dealing with an enemy with whose character, force, and capacity for offence he is acquainted. Thus if we know that a particular germ can only live and multiply in the system of a particular host, and that too only under certain conditions, we have already grasped the main point necessary for successfully waging war against that germ; on the contrary, if we are ignorant of these essentials, the application of particular methods of warfare is at the best empirical.

Another important element in the attaining of success, or otherwise, lies in the fact that the germs of certain diseases are facultative, whilst others are obligate. The germs of anthrax, of tubercle, of black-quarter, of certain forms of foot-rot, of influenza, of cattle plague, of lock-jaw, and probably also of swine fever, not only preserve their vitality in such a medium as soil, but they have the power of assimilating the elements of nutrition and of growth therefrom, and that to an almost indefinite extent. The germs of pleuro-pneumonia and of rabies may preserve their vitality and power of reproduction outside the animal body in a very limited degree, and for a comparatively limited period. Those of foot-and-mouth disease undoubtedly preserve their vitality for a considerable period (several months) in such medium as hay, straw, and similar materials, whilst those of glanders retain their hold of life for an undetermined, but not very limited period, when lodged in woodwork enveloped in the dried discharges from the nose, or from the external sores of farcy, and through the medium of organisms conveyed directly from animal to animal.

Again, some germs are equally at home in the body of

several and very different hosts: thus foot-and-mouth disease is equally at home in the system of the sheep and the pig; rabies is inoculable in the system of almost every domestic and semi-domestic, and even in some wild animals, and unfortunately in man; glanders is essentially an equine disease, but it is propagable to man, though, curiously enough, nearly all domestic animals except the dog successfully resist, and even in the dog its virulence is materially modified; influenza confines its attention to the horse, though on one occasion I myself witnessed the transmission of one of its forms ("pink-eye") to the cow, and there is good reason for believing that, in one or other of its phases, its prototype is to be found in man; anthrax knows no distinction of parties, its germ is almost equally virulent in the system of the cow, the horse, the sheep, the pig, the deer, and to a less extent in man, while only under certain conditions it can be acclimatised in the body of the fowl; tuberculosis attacks indifferently man, the horse, the ox, the guinea-pig, the dog, the cat, the monkey, the rabbit, and in one form poultry and certain wild animals, but the sheep only very rarely becomes its victim; pleuro-pneumonia and black-quarter are essentially bovine maladies, as is cattle plague, though the latter has been occasionally transmitted to sheep; swine fever has practically only one host, the pig; tetanus affects most largely man and the horse, though it is probably inoculable in animals (certainly in mice), and is occasionally seen in the ox, the sheep, the pig, and the dog; foot-rot is a bovine malady, and distemper a canine; and diphtheria, so far as my experience goes, never arises as a spontaneous affection in the domestic animals; and while the pox of the horse is transmissible to the cow and from the cow to man, sheep-pox is only transmitted to animals of a different species with difficulty, as is also the smallpox of man.

Bearing the above-mentioned facts in mind, we are in a tolerably favorable position for estimating the difficulties which have to be overcome in suppressing any given disease, and of arranging the order of battle in accordance with such estimate.

Another illustration I may be permitted to take advantage of, and that is the fact that in the destruction of animal parasites we obtain a powerful aid by, in the first place, studying their natural habits; *e. g.* we know that in order to rid an animal body from fleas, we have to deal not only with the flea itself, but also with its larvæ, protected, as they are, in galleries formed under the cuticle

of their host; while in the case of lice we have to aim at the destruction of the ova, which are simply deposited on the hair; and again, in the case of internal parasites, we have to remember that certain species pass through a complete metamorphosis in the bodies of two hosts, and in some stages outside the animal body altogether, while in others the metamorphosis is simple and completed in the body of one host.

In considering the subject of *prevention*, I shall divide it, firstly, into prevention as applied to diseases of exotic origin, and secondly, to diseases which are peculiar to certain localities only, or by which their prolonged existence therein have become as it were native.

It might at first sight be thought a very simple manner to prevent the introduction into a country or district of any foreign malady; some would say, prohibit importation of live animals, or any natural products thereof, *e. g.* hides, skins, hair, wool, or hoofs, but that this apparently simple precaution is ofttimes insufficient is shown by the fact that such maladies as foot-and-mouth disease and anthrax may be readily introduced by contaminated feeding stuff, litter, and in the case of anthrax by contaminated material used as fertilising agents. It would perhaps be sufficient in the case of most maladies to impose a prolonged period of quarantine, but we know that such a step is absolutely nugatory in the case of rabies and pleuro-pneumonia. The incubative period of the former is quite indefinite; it may be one of a few days or weeks, it may be one of years: while in the case of pleuro-pneumonia an encysted pleuro-pneumonic lung may be a source of danger for a period of over twelve months. In years gone by the incubative period of this malady, like that of rabies, was considered to be indefinite; but since I first made public, now some twenty years ago, the fact that in such instances the source of infection really arises in a so-called recovered case of disease, our views on this point have undergone material changes. I grant that occasionally it is almost impossible to trace the source of infection to this cause,—as, for example, when we meet with a case of pleuro-pneumonia in a herd of cattle which have been in the continued possession of the same owner for a period of say six or eight months, and have had no opportunity of coming in contact during that time with diseased animals in which, on slaughter, no old cases are found. Here, however, we are not always in a position to say what animal or animals have been previously removed from the herd.

The most effectual methods of protecting a district or locality against the introduction of exotic diseases are—firstly, home-breeding; secondly, prolonged quarantine or isolation of newly purchased animals.

In the suppression of an outbreak of a contagious or infectious malady, the most radical measure to adopt is the system of stamping out, *i. e.* of slaughtering all diseased animals, and all that have been in contact therewith, as well as all animals liable to be attacked by the particular malady, for a radius more or less extensive according to the method of spread of the particular malady with which we have to deal: thus, in the case of pleuro-pneumonia, the area of limitation need not exceed a radius of half a mile, or even a quarter of a mile; whereas in the case of foot-and-mouth disease the radius, as a rule, requires to be materially extended. It is quite true that we may be able to limit the spread of such a malady as foot-and-mouth disease to very circumscribed boundaries, without the aid of slaughter, by the adoption of rigorous sanitary measures. Some twenty-four years ago I was enabled to confine its limits to the cattle-house in an ordinary farm building by the strict internment of diseased animals and those in contact with them, and by adoption of disinfectant measures.

But while this is so it must be patent to all who have been accustomed to deal as sanitarians with such maladies that the more radical the measure adopted for their suppression, the more satisfactory the results. It may be as well here to point out, in a general sense, the methods which have in my hands proved most effectual in arresting the spread of the specific eruptive fevers, *e. g.* foot-and-mouth disease. These measures are, firstly, the strict isolation of diseased animals and all that have been in contact with them, and, if necessary, the employment of police for the purpose; secondly, appointing only a sufficient number of persons for the purpose of attending the isolated animals, and insisting upon such persons wearing during the period of attendance a waterproof overall suit, to be left on the premises on leaving them, and before their departure thoroughly washing their hands in some disinfectant fluid. Thirdly, scattering freely about the approach to the premises quicklime or carbolic powder. Fourthly, disinfecting the skins, hoofs, &c., of diseased animals daily. Fifthly, destroying or fencing off all animals, such as rats, rabbits, &c. Sixthly, disinfecting all drains and manure heaps. Seventhly, before the premises are declared free destroying everything of a destructible nature by fire or

chemical means, and cleansing and disinfecting all vehicles found on the premises and the premises themselves, and prolonging the period of internment sufficiently to avoid the dissemination of infection by desquamatic cuticle and cast-off hair. In the case of contaminated pastures or lands much may be done by free application of quicklime and salt, or by submitting the land, where practicable, to a process of tillage for a period of one or two years.

In order, further, for any country to be in a position to deal promptly with an outbreak of disease, a uniform system of sanitary police should be inaugurated. I am of opinion that all animals, whether on a farm, in cattle, sheds, or stables, should be registered by local officials. That in the case of death of animals the deaths should be at once reported to such official, who should have the power of directing that a *post-mortem* examination of the carcass or carcases be made by a qualified veterinary surgeon, whose services should be paid by the State, who should be compelled to furnish a certificate setting forth the nature of the malady. The veterinary surgeon should be invested with full authority to adopt on the spot such measures as he may deem advisable for the purpose of preventing the spread of any malady of a contagious or infectious character, and as a corollary to the above-mentioned measures all private slaughterhouses should be abolished.

Having dealt in a general sense with the question of prevention and suppression, I shall now proceed to deal separately with the more important of the contagious and infectious diseases, beginning with those that may be placed in the category of contagious maladies.

First Group of Specific Fevers purely Contagious, or Infectious only in Limited Degree.

(A) *Gonorrhœa* (Specific Urethritis or vaginitis).

Animals most susceptible are the ox, the horse, the dog.

Causa causans.—A micrococcus.

Vital Resistance of the Organism.—Outside the animal body practically non-viable; inside the animal body undetermined. In bovines the malady is as a rule effectually suppressed by appropriate (disinfectant) treatment in a few days, but one case came under my notice in which good ground existed for the belief that a certain bull had contracted the disease from a cow that had suffered from it the previous season, and I have seen the charac-

teristic lesions persist in the vagina of a cow for periods of months.

In equines the period of continued infectivity is very indetermined. In some cases it certainly extends over months, and I have the history of several cases in which strong grounds existed for the belief that the stallion was the means of infecting mares after a period of several months' apparent convalescence. Of course there is always the probability of secondary infection having taken place here, but in one or two instances the existing circumstances entirely negatived such probability.

In canines the disease is of much more obstinate character than in bovines, and in my practice cases of the development of secondary lesions of a syphilitic character have developed in the male, which have either been incurable except by the aid of emasculation, or absolutely ineradicable.

Transmission.—By coition only.

Prophylactics.—In bovines coition should not be allowed for a period of several weeks after apparent convalescence.

In equines coition should never be re-permitted until a practical test, by means of comparatively worthless animals of an opposite sex to the infected individual, has been had recourse to. The same test might be had recourse to in case of canines, and even in the case of bovines.

(B) *Rabies.*

Animals most Susceptible.—The dog, the wolf, the jackal, and the hyena, according to some authorities, but it is transmitted readily by inoculation to nearly all animals and to man.

In Great Britain it has been seen in the horse, the ox, the sheep, the deer, the pig, and the cat.

Causa causans.—Undetermined.

Vital Resistance of Organism.—Outside the animal body probably short; the saliva and the tissues of the body generally are not known to retain the power of infectivity for more than a few hours under ordinary circumstances, though the great nerve organs may remain virulent, under favorable conditions, for many days. Of the period of infectivity possessed by the living (infected) animal we know nothing except that, during the period of activity of the malady, *i. e.* during the life of the victim, it retains the power of transmitting the malady. Cases of recovery from the naturally contracted malady have been so ex-

cessively few, that no data practically are available to aid us in arriving at a definite conclusion on the point.

Transmission.—By actual inoculation through the medium of tooth wounds, doubtfully by escaped saliva lodging on open wounds, still more doubtfully (in my experience) by saliva resting on unbroken skin and intact mucous membrane, or by ingestion of contaminated materials, or by the organs, flesh, or blood of infected animals.

Prophylactics.—Very simple and very efficacious if the necessary measures are rigorously carried out. Clean countries may be effectually protected by the adoption of a prolonged period of quarantine, say for six months. Australia has been protected by such quarantine, but looking at the fact that the period of incubation is so indefinite, the sufficiency of the period may be legitimately questioned.

In infected districts the following regulations have been found effectual:—(1) The licensing of all dogs; (2) destruction of all affected animals, and all that are known to have been bitten; (3) muzzling or rigid internment of all healthy dogs,—allowing them to go about under personal supervision, even in leash, is dangerous without muzzling; (4) the filing down of the canine teeth to a little above the level of the apices of the molars and incisors; (5) the seizing of all stray unmuzzled dogs and destruction of the same, if not claimed within four days, after seizure, the owner being fined and also mulcted in a penalty if he does not possess a licence; (6) the wearing of a stamped collar, though this, in my opinion, is not an absolute necessity, except for the purpose of insuring that the owner of the dog has obtained a licence,—a fresh stamp bearing the year of issue would have to be procured annually.

In all large cities and towns a periodical raid on stray and ownerless dogs should be instituted. The subjoined table, supplied to me by the Chief Constable (Mr. Henderson), will show what has been done in this direction in the past in the city of Edinburgh:

Particulars of Seizure of Dogs by Police.

Year.	Period.	Number seized.	Number destroyed.	Number claimed or sold.
1886	Between 6th Sept. and 30th Oct.	485	258	227
1887	,, 18th July ,, 30th Sep.	634	270	364
1889	,, 15th July ,, 30th Sep.	1090	237	853
1892	,, 19th Aug. ,, 30th Sep.	635	120	515

In 1881 an outbreak of the disease occurred in Edinburgh and the surrounding districts, and the disease remained unchecked for a period of several months. Upwards of seventy cases in dogs and three cases in horses came under my own observation during the whole period of the existence of the outbreak. In three months after the adoption by the magistrates, acting on my advice, of the great bulk of the measures above enumerated, the malady was suppressed, and since that time only three cases in imported dogs have come under my personal observation. There is admittedly one blot on the measures taken in this city, viz. the sale of unclaimed dogs.

It is right to mention that the local authority of the county of Midlothian and the neighbouring Leith burghs joined the Edinburgh local authority in the battle which was waged against the disease.

(*To be continued.*)

Clinical Cases.

A CASE OF HYDROPS UTERI.

By Clement Baxter, M.R.C.V.S., Elgin.

On the 8th September, 1896, I received a message to go to a farm about two miles from here and see a heifer which was supposed to be heavy in calf, and close to her time of calving.

The animal had been bought in about four months before, and had been lying out at grass until a few days before the time I saw her. The owner had then been looking over his stock, and when he saw this heifer he gave orders for her to be taken home, as she was "just at the calving."

I went to the farm and examined the heifer, and diagnosed the case as one of dropsy of the womb. The sides of the animal were bulged out considerably, and she appeared to be uneasy both in the recumbent and standing positions. She had difficulty in breathing, and was frequently coughing,—the cough, in my opinion, not being due to disease of the respiratory organs, but to pressure upon the chest. The pulse was scarcely perceptible; the temperature 1° F. above the normal (taking 101·4° F. as

average for cattle); appetite in abeyance; fæces very dry and scanty.

I advised that the womb should be tapped, and a part of the fluid drawn off. Not having a trocar and cannula with me, I agreed to go out on the following day to tap the animal.

On the following day I tapped the womb through the parietes of the abdomen. Instantly, on the withdrawal of the trocar, there was a flow of a clear watery fluid. I allowed it to run until nine gallons of the fluid had been withdrawn; the animal then being apparently easier, and I, thinking enough had been taken off at one time, took out the cannula. I followed this up by giving the heifer every day small doses of Ol. Terebinth. and Ol. Lini, with salts of iron. After a day or two the animal began to improve, and gradually began to assume a more natural shape of body. I visited her every second day for a week, when she was going on so well, appetite and rumination having returned, that I thought there was no need attending her longer, but advised the continuation of the tonic.

I expected the heifer to calve within three days after she was tapped, but there was no sign of calving at the end of a week. Afterwards I frequently inquired how the heifer was going on, and whether she had calved. The answer was—"The heifer going on well, but has not calved yet."

No signs of calving came on until the evening of the 29th September, when the animal gave birth to a living calf. The calf died about six hours after birth.

What I could not understand in this case was the length of time the heifer held the calf after the womb had been tapped. In our experience tapping the womb and withdrawing a part of the contained fluid always (this case excepted) caused expulsion of the fœtus in three or four days; but in this case parturition did not occur until a few hours over twenty days after the operation.

A TUMOUR ATTACHED TO THE MESENTERY CAUSING OCCLUSION AND STRANGULATION OF THE BOWEL.

By R. McGregor, M.R.C.V.S., Audlem, Cheshire.

On Tuesday, February 8th, I was called out about 8 p.m. to visit a valuable carriage horse, eight years old.

History.—Horse was always very healthy, and was in

good condition. The stud groom said he was all right up to 7 p.m., when he went to feed him. He noticed the horse was always turning his head round to his sides and would eat nothing, so he sent down for me.

When I saw him he seemed quiet enough, only for this looking back at his abdomen. I watched him for a short time, and then gave Chlorodyne ʒj. After giving this he staled and eructated two or three times. His tail was kept elevated, so I examined him *per rectum;* and found the double colon filled with very hard fæces, but none in the rectum.

Diagnosis.—Gastric colic and flatulence with impaction of double colon. Put on hot cloths and gave injections. About 10 o'clock gave—

Sp. Æther. Sulph., ʒj.
Sp. Ann. Arom., ʒj.
Acid. Carbolic.. ♏x.
Chloral Hyd., ʒij.
Ol. Lini, Ojss.

After this drink he eructated much gas and became easier. About 12 p.m. I left, after mixing up some medicine for him during the night.

February 9th.—Saw him about 9 a.m. Quiet only now and then, looking at his sides. Groom said he had been quiet all night. Gave a draught, and left to go round my other cases. About 12 noon groom came after me to say he was worse, had broken out in a perspiration, and that they could not get him dry. When I got there (1 o'clock) my patient was dead.

Post-mortem.—Opened the abdomen, and found it filled with fluid, and bowels covered with hæmorrhagic spots. Stomach ruptured round large curvature, and the tumour causing occlusion of the bowel in a very peculiar manner, as you will see. Some parts of bowel were gangrenous.

Remarks.—He showed no symptom of ruptured stomach and none of twist, as I should have expected from the *post-mortem. No violent symptoms at all, simply turning his head round to his sides. I forgot* to mention his temperature was 104°.

(The tumour was the size of a Tangerine orange, and pedunculated. The mesentery had ruptured and allowed the tumour to pass through, and by means of the pedicle the bowel was, to all intents and purposes, ligatured. The bowel was gangrenous. The tumour was a fatty tumour, and had become calcified. Not infrequently in the dissecting room tumours as large as walnuts are found free in the

peritoneal cavity. This specimen corresponded in appearance and structure with those we have seen in dissection subjects.—Ed.)

AN INTERESTING POST-MORTEM.

By Alfred Marston, M.R.C.V S., Kinnersley Letton, Herefordshire.

The subject was a big brown shorthorn cow, five years old, seven months gone in calf. I had been attending some horses for the owner, who on February 28th asked my advice about her, saying that she had been unwell for some time back, but appeared to be all right again.

On examination I could detect little wrong with her; her pulse, temperature, and respirations were normal, and she was feeding and chewing her cud naturally; but there was an occasional grunt,—more, I thought, of inconvenience than of pain, as she was very fat, and apparently the calf (which was evidently alive) was very large. Thinking a purgative would relieve her, I gave—

℞ Aloës Barb., ʒv,
Zingib., ʒss,
Nucis Vom., ʒj,
Mag. Sulph., lb. j,

in oatmeal gruel, followed by linseed tea.

I saw the owner a day or two after, when he said the animal was all right, but that if there should be anything wrong with her again he would let me know at once.

On Sunday, March 7th, a messenger came to say that the cow was very ill. I at once went to see her, and found her nearly dead on my arrival.

Autopsy.—On opening the abdomen nothing abnormal was found in the rumen, but in the reticulum was the end of a nail, the point of which had penetrated the wall of the reticulum, the diaphragm, and the pericardium, and was against the wall of the heart. This foreign body had set up traumatic carditis, which was evidently the cause of death, the other organs being perfectly healthy.

(The nail is a three-inch nail of the usual pattern.—Ed.)

PASSAGE OF A FOREIGN BODY FROM THE STOMACH OF A BULLOCK INTO THE LUNG.

By P. Scott Falshaw, M.R.C.V.S., Government Veterinary Surgeon, Singapore.

On reading the article by Mr. Sinclair in the December number of *The Veterinarian* on the above subject the following case was brought to my memory, which may prove interesting to your readers. Some months ago an aged Indian cart bullock in fair condition was brought in a cart to the Municipal Abattoir for slaughter. The owner said it had slipped in the stable and broken its leg a day or two previously. I had the animal slaughtered, and while the intestines were being taken out of the body the butcher accidentally cut through the diaphragm close to the ribs. Immediately a quantity of bad-smelling purulent matter was discharged through the opening. On examining the interior of the chest I found that the left lung was adhering to the chest wall for a considerable extent close to the diaphragm. On cutting into this adhesion I found it was formed by a cavity about the size of a man's hand, containing a quantity of bad-smelling pus, and also a bent piece of rusty iron wire about two and a half inches long ; the lung for the depth of about an inch and a half around this sac was consolidated, and had the peculiar marbled appearance seen in contagious pleuro-pneumonia.

There was no fracture of any of the limbs, and I could get no definite history of the case from the owner of the animal, a Chinaman. My own opinion was that he invented the broken-leg tale to suit his own ends. I may mention that the animal showed no symptoms except that it was unable to stand, and occasionally coughed with difficulty. The carcass was hung in the cooling room, but I found that in a few hours the smell of the pus seemed to have pervaded the whole carcass, so I ordered it to be destroyed.

THE VETERINARIAN, APRIL 1, 1897.

THE PUBLIC HEALTH (SCOTLAND) BILL.

The President of the Royal College of Veterinary Surgeons has done good service to the profession by directing attention to certain sections of the Public Health (Scotland) Bill which at present is before the House of Commons. It is unnecessary to give the objectionable clauses in detail, since every member of the College will have received Mr. Trigger's letter and enclosure; but it is required of every one who has the interests of his profession at heart to do his best to thwart what, if carried into effect, would seriously prejudice the position of the veterinary profession. That any medical officer or sanitary inspector may enter any premises, or search any cart or vehicle, and inspect or examine any animal intended for food, and if necessary seize the same, is not only unsatisfactory for the owner of the animal or occupier of the premises, but a slight to those who have made the study of diseases of animals their vocation. A veterinary surgeon who has graduated in the schools and is conversant with the various phases of disease as affecting the lower animals is, to most minds, the individual to whom the powers should be delegated. So far as the education of the Medical Officer of Health or of the sanitary inspector is concerned, a knowledge of diseases of animals does not enter into the training of either of them; and despite the fact that they may read text-books upon veterinary subjects, their entire preparation for the offices they hold has been deficient in the most elementary facts of veterinary science. The stock-owner will doubtless have something to say on the question, for it cannot be satisfactory to him that his premises may be overrun "at all reasonable times" by the Medical Officer of Health and the sanitary inspector, and his cattle examined and possibly condemned by men in whom he has not the slightest confidence. But putting on one side the Medical Officer of Health, and considering the sanitary inspector, it would be interesting to know the qualifications of the latter over the veterinarian. Most men will be able to call to mind examples of the sanitary inspector who have apparently been gathered from the most diverse of trades and occupations; and in not a few

places the position of sanitary inspector is occupied by some individual who has failed to succeed at his own business, or the office is deemed a fit place for some one to occupy during his declining years.

Indeed, the duties of the sanitary inspector are rather the inspection of drains than the inspection of cattle. We venture to think if the members of the profession will bestir themselves the anomalous position it is proposed to confer upon the Medical Officer of Health and sanitary inspector will be withdrawn; and the only fit and proper person, the veterinary inspector, will be appointed to carry out this portion of the Act. It has been proposed that each member should try to influence his own representative, but we would go further and suggest that each should do his best individually, and that the societies should call special meetings, and copies of resolutions passed be sent to the M.P. representing the district covered by the society. In this way greater influence would be brought to bear, and the voice of the profession would have greater weight.

In connection with this question of the Public Health (Scotland) Bill, three things strike us as worthy of discussion. The first is, what is the National Veterinary Association doing? Is it still hibernating, whilst one of the chief objects of its very existence—that of furthering the interests of the profession—is being neglected? Now, indeed, it could show that it possessed some life, and that it is untrue that it lies dormant save for a few days every recurring summer.

Second, is it not about time that the Royal College of Veterinary Surgeons took up the subject of public health as relating to the lower animals, and instituted examinations and granted a special diploma on similar lines to those granted in Public Health by the several medical corporations? If this were done we should have at hand the strongest argument why we should not be passed over and our place usurped by others. The ordinary diploma would be sufficient in a country where veterinary science is appreciated, but here we are considered, even in subjects pertaining to our own domain, as inferior to the Medical Officer of Health and the sanitary inspector, and we must forge another weapon; and none could be better than a diploma certifying that the person named therein had had a special training in the duties required of a veterinary inspector. It would be a field for many of our younger graduates to work in, and one where the harvest would be of good account.

Third, is it not possible to have a guardian of our rights, where his voice could be heard and his influence felt? Has not the time come for the profession to have its representative in Parliament? Of course, it would be necessary to run the candidate in some constituency or other—an agricultural one for choice,—and he would require, doubtless, his expenses paid. Unfortunately we are like the conies, a feeble folk, but by union we could attempt something. Most of the professions are represented, and at the last election two schoolmasters were elected, and they may be considered as looking after the interests of schools and the teachers. Similarly the medical profession has its representatives, men who when the time comes may be relied upon to use their best efforts to protect their brethren. The labour members are other examples. Then why, since our profession is so closely allied to agriculture, and the practice of our profession to the wealth of the country in the form of live stock, why should we not have our representative to look after our interests? Surely it would be impossible for such anomalies as at present exist at the Board of Agriculture, and such as are suggested in the Public Health Bill, to be even considered for one moment; and we venture to think that no Government would give effect to them if we could voice our sentiments through one of our persuasion.

THE VETERINARIAN AND THE *RECORD*.

Last month in these columns we gave expression to certain views we hold concerning the examinations, and we ventured to point out how certain changes would, in our opinion, not only improve the examinations, but also would cut down the expenses. We were astonished to find our remarks made the subject of a lengthy leader by the editor of the *Record*, who is inclined to believe we are about to head a revolution. Lest we should be misunderstood, let us say at once that such is not our intention; we have no desire even to be a "reformer;" we have not the time to spare if we had the inclination; but what we consider is to the benefit of the profession at large we shall support to the utmost of our power. We speak for no school; we back up no party; we have no private ends to serve; and since we have been connected with this journal we have done our best to represent the views of the whole profession.

Moreover we are no arm-chair educationalists, but have been occupied for some years in teaching, and the opinions we expressed were those we considered of advantage to students and future practitioners. When we come to consider our critic's opinions, however, we find that after all there is not much difference between his own and ours. We appear to disagree as to whether stable management is or is not a portion of hygiene. It may be so in the text-books, says the editor of the *Record*, but the Council of the R.C.V.S. has isolated it, and given a detailed syllabus of stable management for the examiners to go by. Of course it is not for us to say why the Council did divide the two subjects, indeed sometimes it is difficult to say what it is that determines their course of action. We are pleased to find that Mr. Hunting agrees with us so far as to say that "such knowledge [knowledge of animals] would be desirable in the first year, but the Council recognised that the time was then so fully occupied that to crowd in any further work would be wrong." This is our own opinion, expressed more than once; and in order to balance matters we suggested that anatomy in the first year should not be a subject of examination, its place being taken by a table (Hygiene) including stable management. We thus require that "this elementary knowledge" should be taught in the first year, and we have maintained that if it were, a man would find out if he had chosen his true vocation before he had spent too much money to warrant him in turning back and taking up something else.

So after all we may rejoice that a great crusade is not in contemplation; we only suggested room being made in Class A for stable management and hygiene, that anatomy be required in Class B alone, and that meat inspection be included with pathology. That is all; we are even unregenerate enough to consider that we have been moderate in our suggestions,—nay, even that we have improved upon the scheme that now has had a fair trial; we have only desired a rearrangement of certain subjects of a scheme which had our hearty approval, but we are not heading a revolution, nor parading as a reformer, nor even contemplating an iconoclastic expedition,—at least, not yet.

Election Address.

TO THE PROFESSION.

Gentlemen,—Having been nominated as a candidate for election of members of Council, I take an early opportunity of stating my views.

I am in favour of progress, and desire to see the general practitioner's interests advanced and safeguarded, and would take as my motto "The greatest good of the greatest number."

A very close association for many years with some of our most successful reformers has afforded me the advantage of clearly understanding the methods of procedure in the Council chamber.

Although a countryman in close sympathy with the general practitioner, I am permanently located in London (not "for some time," while awaiting marching orders), and I have special facilities for attending Council meetings, should you honour me with election.

I wish to serve no small section removed from the every-day battle for existence, and having little in common with the rank and file.

I should not favour any movement intended to suppress the conduct of useful auxiliary callings, as I see no loss of dignity in carrying on an honest business that serves the public convenience.

I deem a period of pupilage with a country practitioner essential to the proper training of the veterinary surgeon.

I desire to have defined as clearly as possible the form or character of advertisement which may be considered "disgraceful," &c.; and further, I object to any trial *in camerâ*, by which a member's name may be removed from the Register without the exact nature of his offence transpiring.

I am, gentlemen,

Yours obediently,

R. C. Irving.

The Month's Progress.

*Function of Interstitial Cells of Testis.**—Herr J. Plato has studied the testes of cat, mouse, &c., and has been led to the conclusion that, in the cat at least, the interstitial cells serve for the absorption and storage of fat, which is used in the nutrition of the ripening spermatozoa. He has discovered fine canals which conduct the stored material to where it is used up.—*Jour. Roy. Mic. Soc.*

Life-History of Larvæ of Œstrus (*Bull. Soc. Zool. France*, xxi [1896].—Dr. Ruser reports that he found in four oxen, which gave the ordinary external signs of being affected by this fly, transparent larvæ in the loose connective tissue between the œsophagus and the body-wall. It would appear that the larvæ are able to bore through the wall of the œsophagus, and so to make their way to the great vascular trunks in the region of the neck. It would appear, therefore, that the view that the larvæ of this fly enter by the mouth is correct.—*Ibid*

Distomum felinum.—Professor P. Sonsino twice found *Distomum felinum* in dogs, and once in a cat, which had bitten a girl without obvious cause, and had therefore been suspected of rabies and killed. Large numbers of *Distomum* were found in the liver. The possibility of human infection is pointed out, and the suggestion made that in cases of cirrhosis hepatica careful search should be made, more especially as Winogradoff has already shown that in Siberia *D. felinum* occurs in man, and causes cirrhosis parasitaria hepatis. The author also mentions some recent observations on *D. Westermanni*. His chief object appears to be to point out the danger of human infection from the diffusion of these parasites.—*Ibid.*

Ætiology of Texas Fever (*Arb. a. d. Kaiserl. Gesundheitsomte*, xi, p. 411; see *Centralbl. f. Bakteriol. u. Parasitenk.*, 1te Abt., xx [1895], pp. 704–5.—Herren Weisser and A. Maassel examined blood from the kidneys of oxen imported from America to Hamburg. No bacteria were found, but within the red corpuscles peculiar bodies were observed. Transfer and cultivation experiments were negative. The red corpuscles contained spherical bodies —usually single, occasionally in pairs, and rarely more

* 'Arch. f. Mikr. Anat.,' xlviii (1896), pp. 280, 304 (1 pl.).

than two. Not infrequently the parasites were spherical, but sometimes elongated and pyriform. They stained readily, but not equally with aniline dyes. The parasites were also met with in the blood and juices of spleen, liver, heart, and lymphatic glands. Thus the observations of the authors confirm those of Smith and Kilborne, who first described the parasite of Texas fever under the name *Pyrosoma bigeminum*.

Sarcosporidia in Muscle-fibres of the Tongue of Cattle and Sheep (*Zeitschr. f. Hygiene u. Infektionskr.*, xx, p. 13; see *Centralbl. f. Bakteriol. u. Parasitenk.*, 1te Abt., xx [1896], p. 754).—Professor F. Sanfelice found in sections of tongues of cattle and sheep almost invariably sarcosporidian tubes which, under a power of 15—20, are seen as small white spots. As a rule, fully developed tubes, occupying the half to the whole thickness of the muscle-fibres, predominate, the early stages of development being of rare occurrence. The larger tubes are invested in a very delicate structureless membrane, and contain sickle-shaped bodies composed of two substances, one of which has an irregular distribution, and the other is highly refracting. In stained preparations uncoloured places are brought out, but no nuclei. The youngest stage of development consists of a protoplasmic mass without structure. Infection continues by bursting of the ripe tubes, the escape of the sickle-shaped bodies, and the invasion of fresh muscle-fibres. Herein they form new tubes after enlargement and fission. As a further stage of development, the author found protoplasmic masses containing nuclei, which, as they increased in size, became oval, and were finally converted into sickle-shaped bodies.

Associated Action of Bacteria (*Intern. klin. Rundschau*, 1894, Nos. 49 and 50; see *Centralbl. f. Bakteriol. u. Parasitenk.*, 1te Abt., xx [1896], pp. 689, 690).—Herren Pesina and Houl think that secondary infection and mixed infection should be sharply demarcated. By secondary infection they understand a process wherein a second pathogenic organism, usually a coccus, and most frequently streptococcus, is associated with the first, and, without aiding in the development of the primary process, excites quite independently a second new septic condition. Of mixed or multiple generalised infection some cases are mentioned where two quite different microbes combine to produce a definite pathological process. The combined action is far more serious than that of either alone. Thus, in a case of

meningitis from otitis media, Friedländer's bacillus and *B. pyocyaneus* were isolated. Alone it is quite rare for either of them to excite meningitis. Two or several microbes do not invade the body simultaneously ; a definite pathological condition has already declared itself at the time of the invasion of the second. The latter immediately excites its own peculiar action, and does this not by superadding a different pathological condition, but by intensifying the action of the first. As an example is quoted the case of simultaneous bacillar meningitis and croupous pneumonia. All at once the symptoms indicated a vertical meningitis as well. The autopsy revealed the presence of tubercle bacilli at the base of the brain and pneumonia cocci over the vertex.

Pathogenic Bacteria in Buried Bodies (*Arb. a. d. Kaiserl. Gesundheitsante*, xii ; see *Centralbl. f. Bakteriol. u. Parasitenk.*, 1te Abt., xx [1896], pp. 454–8.—Professor W. Lösener has made some experiments with pathogenic bacteria relative to the time these organisms retain their vitality in buried corpses, and the danger supposed to be incurred by contamination of the soil and the soil-water by these microbes. The method adopted was to insert the virus into pigs, which were wrapped up in linen cloths, placed in wooden coffins, and buried in a soil partly sandy, partly clayey.

The bodies were infected by injecting into the axillary artery dilute cultures, or by inserting into the thoracic or abdominal cavity cotton wool saturated with cultures, and even by inserting infectious viscera, such as tuberculous lungs or typhoid spleen. The bodies were buried at a depth of $1\frac{1}{2}$—2 metres ; they were only dug up once, and measures were taken for obtaining samples of the soil-water and the soil in their immediate vicinity after varying intervals of time. The microbes used were those of enteric fever, cholera, tuberculosis, tetanus, suppuration, and anthrax. It would seem that the typhoid germ may retain its vitality under the conditions mentioned for at least ninety-six days. The cholera vibrio was demonstrable up to the twenty-eighth day, but only in the fluid taken from the abdominal cavity, wherein a cotton-wool plug had been inserted. The observations on tuberculosis were carried on for two years. In only two cases (dug up at sixty and ninety-five days) were tubercle bacilli found, and then only in remains of introduced viscera. Tetanus microbes were not found after the 234th day. Staphylo-

cocci and streptococci were regularly found during the first six months. *M. tetragenus, pyocyaneus,* and *B. Friedlaender* soon succumbed.

The experiments with anthrax were intended to ascertain if there was any dissemination of the germs owing to the rise and fall of the soil-water, for the resistance of anthrax spores to putrefaction was settled long ago. One experiment gave positive results, and that was probably more or less accidental.

The main result of the author's work seems to be that, provided the soil around a corpse have good filtering properties, though the layer be not thick, there is practically no chance of dissemination of a virus, whether there be permanent or variable saturation of the soil.

Adhesive Material for Labels on Glass (*Zeitschr. f. aug. Mikr.*, ii, 1896, p. 151).—Labels stuck on glass often strip off, says Herr Marpmann. This inconvenience may be avoided by means of the following adhesive:—120 grms. of gum arabic are to be dissolved in a quarter of a litre of water, and 30 grms. of powdered gum tragacanth in a similar quantity. After a few hours the tragacanth solution is shaken until it froths, and then mixed with the gum arabic solution. The mixture is strained through linen, and 150 grms. of glycerine (previously mixed with 2½ grms. of oil of thyme) added to it.

Cement for Porcelain (*Pharm. Era;* see *Zeitschr. f. aug. Mikr.*, ii, 1896, p. 153).—The Chinese cement for porcelain (Schiolias), glass, and such like articles is composed of finely powdered calcined lime 54 parts, alum 6 parts, fresh blood 40 parts. These ingredients are worked up into a homogeneous mass. Pasteboard or paper articles saturated with a dilution of this cement, made by thinning it down with water, becomes as hard as wood. Diluted, it may be used to give a protective coat to walls of rooms, or to the inside of vessels used for keeping oil and fats.

On the Presence of Cysticerci in the Lungs of Cattle.—Morob found in the lungs of an old cow killed at the abattoir of Troyes many cysticerci; fifty to sixty were met with upon the surface and in the thickness of the organ, and appeared as vesicles the size of peas. Many were transparent, and contained clear serum; others were more or less opaque, and had undergone caseous degeneration to a varying degree. The caseous material had accumulated between the walls of the cyst and the vesicle belonging to

the scolex which had degenerated. A careful examination of the heart, masseters, internal pterygoids, the tongue, psoæ muscles, the internal muscles of the thigh, and the subscapularis muscle failed to show any hydatids. Professor Raihet confirmed the opinion that the cysts were those of the *Cysticercus bovis.—Revue Vétérinaire.*

Tuberculosis of the Goat.—Moussu has seen a case of tuberculosis in a goat, which was traced to be of bovine origin and due to cohabitation. He has also seen extensive abdominal and pulmonary tuberculosis in a six months old he-goat. Further, a six years old she-goat developed tuberculosis; she lived in a stall that was separated from off an infected place, but which had the same air-supply. In this last case there was extensive disease (atheroma) of the aorta and pulmonary artery.—*Ibid.*

Lymphadenitis complicated with Paraplegia.—Larrony of Riscle describes the case of an ox that had always been a slow worker, sweat readily, had an irregular appetite and an insatiable thirst. Its state grew worse, and an œdematous swelling involving the submaxillary lymphatic glands appeared, and the glands themselves were enlarged. The mucous membranes were pale and dropsical. The pulse was scarcely perceptible. When caused to move the animal dragged its limbs as if in pain; it was stiff behind and tottered in its walk. Tonics were prescribed, such as tincture of gentian and iron, and stimulants to the skin in various parts. The patient died soon afterwards, and a *post-mortem* examination was made, and all the lymphatic glands were found to be hypertrophied. Tumours the size of a small nut were observed in the mesentery.—*Progrès Vétérinaire, ex Revue Vétérinaire.*

Lesions of the Spleen complicating Strangles.—A colt of the Percheron breed, some twenty months old, had an attack of strangles in June, 1896, and numerous abscesses were developed in the intermaxillary space and parotideal region. Appropriate treatment gave relief, and the affection apparently subsided; but the patient, formerly lively and full of spirit, did not thrive, was dull, and did not feed. No acute affection of any of the viscera could be localised. He was, however, very anæmic. The patient died and an autopsy was made, and the spleen was found very much enlarged, weighing more than 25 lbs. On section it was found to be a pale red, and showed the trabeculæ thickened and indurated. On pressure, droplets of white pus exuded. A scraping of the section did not

give that which is typical of the spleen, but one grey in colour composed of pus cells and streptococci. The spleen had been invaded by the streptococci, which are the cause of strangles, and which several months previously had given rise to abscesses in the pharyngeal region.—*Recueil de Méd. Vét.*

On the Radical Cure of Hernia.—Cordelier, in the *Recueil de Méd. Vét.*, recommends operation for the radical cure of hernia, and he has successfully relieved both horses and dogs by operation. Thorough antisepsis is absolutely necessary. The operation is indicated in all cases of hernia, however large, old, difficult to reduce, or complicated by adhesions; and in cases of strangulation or inflammation of the sac, &c. Generally the operation is the same in all cases: it consists in reducing the hernia, excising the sac, cleansing the wound, and suturing the abdominal walls. Three or four days prior to the operation the swelling is shaved, and then smeared over with an ointment containing either boracic acid or corrosive sublimate. When the subject is cast assistants keep it upon the back, the operator in the meantime paying close attention to the disinfection of the operation field and to the instruments. The hands of the operator and those of the assistants having been washed in sublimate solution, and everything required being in an aseptic condition, the operation is begun and carried out as follows:—An incision is made through the skin down upon the tumour, through the various tissues into the sac; then the intestine, freed from any adhesions that may have formed, is put back into the abdomen, where it is kept by an assistant by means of an aseptic sponge. The hernia being reduced, the fibrous ring surrounding the opening through which the bowel protruded is scraped, and the lips drawn together by means of strong catgut. The skin is sutured separately by means of horsehair sutures. An antiseptic dressing completes the operation.—*Ibid.*

Lympho-sarcoma of the Chest of a Cow.—The following is an extract from a clinical lecture given by Professor Moussu, of Alfort. A Normandy cow, five years old, was sent to Alfort because she had tumefactions involving the dewlap and the throat. At first sight several facts arrested attention,—the lack of vitality, tympany, malformation of the affected region, which extended along the inferior aspect of the trachea from the entrance to the chest to the middle part of the neck. On palpation the tumour, which

was ill-defined, appeared hard, resistent, and only slightly œdematous, almost insensitive, and not adherent to the skin. The lower part of both jugular furrows was almost obliterated. On the left side the prescapular lymphatic gland was much enlarged, prominent and moveable. The lymphatic gland at the point of the shoulder (*sic*) was hypertrophied, and the tumour below the trachea extended from the entrance to the chest into the jugular furrow and up the neck. On the right side the glands were not involved, but the tumour was present as on the left side. There was also an œdematous swelling between the jaws. The appetite was in abeyance; mastication was easy, but deglutition was painful and impossible for hard food. A permanent tympany, though not severe, did not interfere with the functions of the rumen. Defæcation was irregular; the dejections were diarrhœic and fœtid. There was a slight cough, a slight acceleration of the pulse rate; the jugulars were distended. The temperature was slightly above normal (39° to 39·5° C.). After weighing all the pros and cons the lecturer came to the conclusion that he had a case of lymphosarcoma involving the anterior mediastinum, the entrance to the chest and pretracheal lymphatic glands which compressed the œsophagus and the blood-vessels. As treatment was out of the question, the animal was slaughtered. On *post-mortem* examination a tumour weighing about 32 lbs. was found in the anterior mediastinum and inferior part of the neck; the blood-vessels, trachea, and œsophagus were surrounded, and included in the new growth. On section and to the naked eye the tumour was yellowish-white, soft, and in places hæmorrhagic, and in appearance like to a so-called encephaloid sarcoma. Microscopical examination corroborated the diagnosis of lymphosarcoma.—*Ibid.*

Tetanus in the Horse.—ALBRECHT had presented to him a horse that had eaten nothing for four days, and which exhibited all the symptoms of generalised tetanus. During the first few days trismus alone was present, but on the fifth day other muscles became involved. No wound could be found on the surface of the body, but in two places the palate had been burnt by a quack who had operated to relieve an imaginary lampas. The wounds were cauterised, and injections of chloral hydrate and also others composed of eggs and milk with sulphate of soda were given. For seventeen days the condition did not improve, so the owner had the patient killed. Albrecht concluded

that the organism had gained access through the wounds in the palate, because the head was primarily affected and no other wounds on the body could be discovered.

On the 19th April a second horse came to the clinic, which four days previously had undergone similar treatment. Trismus first manifested itself, to be speedily followed by contraction of the muscles of the trunk. The patient died on the third day. Albrecht considered that in this case, as in the former, the wounds of the palate were the portals whereby the organisms gained access to the tissues. It is to be noted, however, that there are many stables where operations upon the palate are common in young animals that are teething, and tetanus does not supervene; and not infrequently in stables favorable to the organism, and where the hay is long and dusty and in every respect a suitable vehicle for the bacillus. The author considers it possible in these cases that the forage does not remain in the mouth sufficiently long, and that the secretions poured into the mouth are inimical to the existence of the germ itself; or, further, that the organisms accompanying the bacillus do not assist it in setting up the disease. He recommends veterinarians to warn dealers and quacks of the possible consequences of their operations.—(*Woch. f. Thierheilk. u. Vierh.*) *ex Recueil.*

Tetanus treated by Lysol.—Härthle (*Woch. f. Thierheilk. u. Vierh.*) records a case of tetanus that was cured by lysol; the affection was traced to a prick. The patient was having his shoes removed when the first signs of tetanus made their appearance; the course of the nail was followed, and deeply cauterised by nitrate of silver. A litre and a half of a solution of lysol was carefully given by the mouth, and several daily injections of the same were given *per rectum*. Besides these a subcutaneous injection of 10 per cent. solution of the drug under the skin of the neck. Three days sufficed for cure, though for some time afterwards the patient was easily excited. The subcutaneous injection was followed by a large swelling, which disappeared in a few weeks without suppurating. The question arises, did cure follow exhibition of lysol or the cauterisation of the wound or of both?—*Ibid.*

Tuberculosis of the Pig.—According to the *Schlesw. Landw. Ztg.*, at the Dantzig abattoir of 40,000 pigs slaughtered there, 11 per cent. were found the subjects of tuber-

culosis, and of the pigs fed in certain dairies between 60 per cent. and 70 per cent. were the subjects of the same disease. It has been recommended owing to the high percentage of tuberculosis to withhold greasy waters, and not to give milk unless previously boiled in those districts where bovine tuberculosis is prevalent.

In the *Woch. f. Thierheilk. u. Vierh.* a case is recorded where the transmission of tuberculosis from a cow to a pig is considered very probable. The pig was two years old, and had a dry frequent cough, which became paroxysmal when the patient left his stye. He rapidly lost flesh and was slaughtered, and on *post-mortem* examination his viscera were found to be studded with tubercles. As a sucking pig he had been kept in a stall previously occupied by a tuberculous cow, and it is considered as probable that the organism was received during his occupation of the contaminated stall.—*Ibid.*

The use of Liquid Extract of Hydrastis Canadensis during Parturition.—Hydrastis canadensis, L., is a perennial belonging to the order Ranunculaceæ, indigenous to North America, and its rhizome encloses both berberine and hydrastine. (It has been highly recommended and is commonly used in this country for the relief of nasal gleet; being introduced to the notice of the profession some years ago by, we believe, Mr. Sutcliffe Hurndell.—Ed.) Voltz (*Woch. f. Thierheilk. u. Vierh.*) was called to see a cow that had been in labour for eight hours, and was unable to bring forth owing to closure of the os, and absence of labour pains. He at once gave 60 grammes of the liquid extract of Hydrastis in half a litre of a decoction of marsh-mallow. The result was rapid and definite, the cow delivered herself four hours afterwards. In a second case where labour had been in progress for twelve hours, the offspring arrived four hours and a half after the drug had been given. (It would appear, though no explanation of the action of the drug is given, that Hydrastis must be used with circumspection in cases of discharge from the nose in mares heavy in foal, or parturition might be induced.—Ed.)

Current Topics.

UNPROFESSIONAL CONDUCT.

By Jno. A. W. Dollar, M.R.C.V.S.

The growing activity of the Registration Committee has aroused in many parts of the profession an uneasy feeling that things are being pushed rather far, and that while every effort should be made to relieve practitioners of unlicensed competition, and to restrain within due bounds the effervescent activity of unduly demonstrative members, yet that the long-asserted rights of graduates of the R.C.V.S. to announce to the public their existence and to carry on reputable allied callings should be respected.

There is much to be said on this head. We must remember that the veterinary profession labours under very different conditions from the medical, and that although the regulations of the latter may usefully serve as examples of what to do, they also warn us very clearly what to avoid. While, for example, there is an excellent reason for placing our elementary educational test on the same basis as that of the medical profession, an even better exists for avoiding any attempt to remodel the democratic constitution of our Council on the utterly fossilised lines of the Royal College of Surgeons. Similarly, though we may admire and strive after the social position accorded the medical man, we must not forget the eternal limitations imposed on us by the very nature of our calling. So long as the veterinary profession continues on its present lines, we must be prepared to find our sphere of activity yearly contracting. The increased attention paid to hygiene, diet,—in a word, to prophylaxis as opposed to treatment, is having its effect; and even the present writer is able to note a distinct falling off in the percentage of sickness in large studs as opposed to the conditions of, say, ten years ago. Quite apart, therefore, from other causes as set out in a former article (*Veterinarian*, September, 1896, pp. 676—678), our circle of usefulness is shrinking, while our numbers enlarge. The struggle for life becomes increasingly difficult, especially for the hard-pushed practitioner, perhaps with a large family, located in a country district, or for the recent graduate seeking to make his way in the world. To compel these men to conform to the medical custom,

and refrain from further announcement than an 8 × 4-inch brass plate with "Mr. Brown" or "John Robinson, M.D.," on their front door, would be an anomaly,—nay, a grave injustice. Some latitude is necessary.

We must remember that every *bonâ fide* practitioner in a country district which can fairly support him is a distinct advantage to the body corporate, for his presence extinguishes the quack, helps to educate the laity to the value of our services, and relieves the intense central pressure. And where the district is unable to support a veterinary surgeon by the practice of his profession alone, his presence is no less important, and no hesitation should be shown in countenancing, if not in absolutely encouraging, him to carry on an allied calling, provided such be exercised honorably and legitimately.

I have said there must be latitude. I might add that this cannot be allowed to degenerate into licence. For instance, I would not object to any reasonable notification of name and profession, even if conjoined with announcements as to shoeing forges, when displayed on the premises occupied; but a healthy custom condemns the use of other premises, and of hoardings, blank walls, or places of public assembly for such purposes. Then, again, a single notification by circular that a veterinary surgeon has commenced practice in a certain district, or the insertion of name, address, and qualifications in a provincial newspaper, if unaccompanied by scales of fees, prices of medicines, or claims to special skill, and utilised during the first month of residence only, would in my opinion be allowable. But this would not cover announcements continued for months or years, nor the advertising of "specialities," "pig powders," "oil of life," or other quack nostrum, nor the quoting of fees or prices.

Shoeing forges have, by custom, become recognised means of amplifying and assisting the practice of our profession. Veterinary surgery originated in farriery, and the importance of good shoeing to the successful treatment of many minor ailments is so apparent, that the veterinary surgeon requires no apology for retaining in his own hands, the supervision of this very necessary, if humble, branch of his art. And as, moreover, it is now generally conceded that a certain scientific knowledge is essential for the improvement of farriery, it would be doubly regrettable if the assistance and direct supervision of veterinary surgeons were removed from a trade for which they have done so much.

Farriery is, in fact, bound up with veterinary surgery, of which it is a by no means unimportant part, and the fact of its inclusion in the curriculum of the R.C.V.S. sufficiently shows the value placed upon it.

Other callings there are which might well form a source of income to the veterinary surgeon. Into these I cannot enter into detail, but must content myself with saying that provided such be honorably, honestly, and discreetly conducted, no stigma should attach to the practitioner. To paraphrase the old saying, a solvent tradesman is worth more than a bankrupt professional man; and whatever my personal feelings on this question, I cannot help seeing that, in the case of many provincial veterinary surgeons, an allied calling alone staves off insolvency. The choice and conduct of a "business" are largely a matter of taste, as to which, we are informed, there is no use in disputing. Let actual offences, whether moral or legal, be treated with the utmost rigor, but let us at the same time assure to every member of our calling the utmost possible liberty in making his way in the world, remembering that the financial stability, reputation, and success of each contribute to the well-being and influence of all.

So far I have treated only of unprofessional conduct in its legislative aspect. The *administration* of the powers possessed by the R.C.V.S. is another and even more serious matter. It is unfortunate that the Council has only one rod for all backs. The least and the utmost it can do is to remove a practitioner's name from the register. Had it a scale of punishments, such as temporary suspension or public rebuke (which, by the way, to be deterrent would have to be exercised very differently from that painfully feeble admonitory function which has obtained of late years), not only would greater justice be done to offenders, but the Council's decisions would gain immensely in authority. At present there is a very natural unwillingness to award the extreme penalty; and just as poaching was most rife when death was the punishment (on account of the sympathy excited for the offender), so at present many offenders escape who under a graduated scale would certainly be punished.

But while I most strongly urge the need for stringency against law-breakers, I hold no less strongly the need for absolute justice. Thrown together in an ever-narrowing circle, practitioners would be more than human to avoid all jealousy. The rival of to-day may be the judge of to-morrow, by whose casting vote is inflicted the doom of

professional death. And death it is in too many cases, absolute as well as professional. Let any one think what opportunity there is for an elderly man who has forfeited his professional rights to start again.

Our present arrangements favour injustice, and place the accused at the mercy of professional rivals. The Council refuses the name of the informer. The trial (for so it virtually is) occurs with closed doors. On the Registration Committee, sitting to judge the accused, is perhaps the informer, to whom, quite naturally the other members of Committee turn for information. There is no recognised prosecutor; so that the Registration Committee, acting on secret information, summons to its secret court the accused; itself cross-examines him, itself passes judgment, and, in a word, often unites in its own constitution the offices of informer, prosecutor, cross-examining counsel, and judge and jury. The formal assent of the Council is almost invariably given to these decisions.

The supporters of the system point to the *safeguards* introduced to ensure justice. There is but *one* safeguard, and that a safeguard for rich and determined men only—an appeal to the Privy Council. I say "rich and determined men" advisedly, for appeals to the Privy Council are costly, and must be prosecuted with vigour.

Under the circumstances it says much, either for the justice or timidity of the Registration Committee, that little harm has hitherto resulted. But the potential danger is so great that it is high time precautions were taken.

I have suggested three. The first is a very mild measure requiring a full report of all defended cases to be kept and (after an interval, to allow an appeal to be lodged with and heard by the Privy Council) published. Of course, if the accused were acquitted, or the Privy Council reversed the decision of the R.C.V.S., the report would be suppressed.

The importance of such a measure even as this would be great. It would enable the profession to judge of the measure of justice awarded in each case; it would allow of criticising the procedure (which is perhaps the greatest possible safeguard against injustice); it would largely prevent malicious accusations being brought; and it would add a little of that dignity and sense of responsibility to the action of Councilmen, when dealing with serious matters, which is at present somewhat wanting. Further than all this, it would inform members of the profession of the views of the Council, and would tend largely to

meet that universal complaint, "How am I to know when I am doing wrong if the Council refuses to formulate the nature of offences?"

The second and alternative proposal is, that should the accused desire his case to be heard in open court, he may give due notice to the chairman of the Registration Committee or President of Council, who shall thereupon fix an hour and date for hearing, and communicate with the professional journals. Members of the profession, to the number of twenty, presenting themselves for admission at the hour and date fixed, shall then be admitted to hear the trial. I should *like* to have added that the name of the informer shall be publicly announced, and that he shall be required to attend and submit to cross-examination. This would certainly be the openest, and therefore the fairest method of conducting such cases. It would be left to the accused to demand this special form of trial: if he felt his case were bad he would probably not select it; if, on the other hand, he were the victim of private malevolence, it would assure him a fair hearing before an audience of his fellows. It is of course the method pursued throughout our English courts of justice, though modified to meet the special exigencies of the position. I am perfectly assured there will be opposition to such a course, though more on the grounds of expediency than of justice.

The third proposal is that no member of the Registration Committee or of the Council who shall have lodged a complaint against a fellow-practitioner shall vote on the motion to strike such member's name from the register, or to inflict other punishment. The undesirability of the accuser also acting as the judge will, I think, be acknowledged by all.

Before concluding I should like to impress on my readers the purely preventive character of the above suggestions, which I must not for one moment be understood to introduce for the purpose of remedying active injustice, but solely as safeguards against potential evils.

A HORSESHOE MADE IN GERMANY.

By Jno. A. W. Dollar, M.R.C.V.S.

Early in December last I became aware that an effort was being made to induce the public to invest their money

in a nailless horseshoe, which, I was well aware, had been tried on the Continent unsuccessfully, and was being introduced to the British public on what I considered utterly unwarranted representations. I wrote to Lord Marcus Beresford and to Colonel FitzGeorge, who I heard were interested in the matter, pointing out to them the shortcomings of the shoe, and hoping they would not lend their support to the undertaking. From Colonel FitzGeorge I received no reply, but *the secretary of the parent syndicate* called on me, avowedly from Lord Marcus Beresford, and stated that his lordship had thoroughly tried the shoe, and knew much more about the subject than I; and that, in addition, it would be well for me to behave very discreetly in this matter. My reply was to send (on the 3rd December) the letter given below to all the principal London newspapers. I do not know whether there is any causal relation between the two circumstances, but I found that on the morning of the 4th December almost every London daily contained a half or whole sheet advertisement of the "Minerva Nailless Horseshoe," *but not my letter*, while the only newspaper *without the advertisement* published the letter.

Nailless Horseshoes.

To the Editor of the "Financial Post"
(December 4th, 1896).

Sir,—From announcements in the press I learn that the public will shortly be invited to subscribe for shares in the "Minerva Nailless Horseshoe Company, Limited."

The syndicate which has the patent to sell states that the shoe is "recommended and endorsed by the leading veterinary surgeons in the world," that "in the English army no less an important person than Lieut.-Colonel Graham has tested it, and has submitted the most favorable report;" and that "amongst leading Continental professors Dr. B. Peter, of Berlin, has given a testimonial of unqualified admiration both as to the utility and cheapness of the new shoe." The gravest statement, however, is that the shoe "is capable of being fitted upon or taken off the hoof by any smith, groom, stableman, soldier, or any handy man."

These statements are all misleading, and some are quite contrary to the fact.

1. The shoe is practically unknown to English veterinary surgeons, and certainly no leading English veterinary surgeon has publicly recommended and endorsed it. The veterinary surgeons whose opinion I have taken have at once condemned the shoe on account of the obvious defects later described.

2. Lieut.-Colonel Graham is not an expert in horse-shoeing, and his opinion can carry no greater weight than that of any other private (and uninstructed) person. Moreover, though the words used might make it

appear he was officially appointed by the War Office to make the test, there is good reason for doubting this.

3. The "leading Continental professor, Dr. B. Peter," is not only not "leading," he is not a professor at all, but only a humble "repetitor," or monitor, in the Berlin Veterinary School.

4. Lastly, the shoe cannot be "easily fitted on" by a groom, stableman, &c. It must necessarily be shaped to the foot like any other shoe, and this renders the services of a farrier indispensable.

In addition to the above I should like to direct attention to the adverse criticism on the shoe by Professor Dieckerhoff (late Principal of the Berlin Veterinary College), and by Professors Schmaltz and Lothes, his co-editors ('Berliner Thierärztliche Wochenschrift,' Nos. 16 and 17, 1896), and its condemnation by Oberrossarzt König, of the Imperial German Army ('Zeitschrift für Veterinarkunde,' April, 1896).

Some practical defects of the shoe are—its shaping requires skilled labour; its construction necessitates its being left so wide as to risk cutting the opposite leg during movement, or deep grooves being made in the foot to accommodate the special fastenings. Such grooves destroy the strongest part of the foot, and must prove very injurious. It is inapplicable to broken, defective, or weak feet, or to horses which "brush" or "cut." The fastening is not always secure. The appearance is unsightly.

The shoe does not lend itself to practical requirements, and though useful as a makeshift for small bodies of cavalry acting far from their base (for which reason it has been employed to a certain extent in the German army), there is, in my opinion, not the remotest chance of its coming into extensive use in towns.

I trust that for the information of the investing public you will print this letter.—I am, &c.,

JNO. A. W. DOLLAR, M.R.C.V.S.

56, New Bond Street, W.; December 3rd.

The subscription list of the "Minerva" Nailless Horseshoe (English and Colonial) Company opened on the 5th December. The Directors of the Company, as given in the prospectus, were—

The Right Hon. the Earl of Aylesford, Chairman.
Lord Marcus Beresford.
Sir Ellis Ashmead Bartlett, M.P.
Colonel A. C. FitzGeorge, C.B.
Henry H. Bemrose, M.P., Lonsdale Hill, Derby.
Charles Webster (Charles Webster, Limited).
Gustave Antoine (Director, Nailless Horseshoe [Parent] Syndicate, Limited).
William H. Bennett (Director of the Larne Inner Tube, Limited).

Of the subsequent history of this company I know little, but the following extract from the *Standard* of March 24th, 1897, may throw some light on the subject:

(Before Mr. Winfaris, Assistant Receiver.)

A Horseshoe Syndicate.

The Minerva Nailless Horseshoe (Parent) Syndicate, Limited.—This company was registered in November, 1896, with a nominal capital of £12,000, and is stated to have been formed to acquire the universal patent rights (excepting those for Germany) for an improvement in horseshoes, and also to form subsidiary companies to purchase the various patent rights. The Managing Director, Mr. M. S. Stevenson, was the promoter of the syndicate, and in November, 1896, he agreed to acquire the patent rights from the German company (who were the owners of the patents) for £25,000. In all a sum of £2995 had been received in respect of shares by Mr. Stevenson, who disbursed it on behalf of the syndicate, and who now claimed to be a creditor for £2122. At the meeting of creditors now held, accounts were furnished showing liabilities £37,297, of which £5554 were unsecured, and assets £260. As regards contributions, a deficiency of £8302 was disclosed. The creditors left the matter in the hands of the Official Receiver.

THE PUBLIC HEALTH (SCOTLAND) BILL.

By Jno. A. W. Dollar, M.R.C.V.S.

Speaking as an individual, I cannot but regret the decision of the Central Veterinary Medical Society to take no corporate action with regard to the above bill. The Central plays an important part in veterinary politics, and its example will not be without effect in deciding the course adopted by other societies. Owing to some accident no advice of the calling of the meeting reached me, and although it is impossible that the opinion of a single member could have greatly affected the final decision, I am sorry to have missed protesting against inaction under what seem eminently favorable circumstances for asserting ourselves. If the veterinary profession desire to extend its sphere and take rank with the medical, it must lose no chance of pushing its claims, and seeing they receive due consideration. The inspection of dairies, of living animals, and of meat intended for human food is eminently a function of the veterinarian. No one else has the necessary experience or preparation. If veterinary surgeons are passed over on the present occasion the fact

will constitute a most dangerous precedent, and will, in large measure, be due to the lethargic attitude of individuals or societies.

It is all very well to suggest that every member of Parliament has been approached by the Royal College. That is not sufficient. As dropping water wears away the hardest stone, so does importunity the indifference of politicians. We should bear in mind the parable of the importunate widow, and in all questions of advancing our interests by legislation adopt as the watchword, "Agitate! agitate! agitate!"

It is astonishing how indifferent we all are to a printed circular; it usually goes into the waste-paper basket. But a written letter is different; at least it demands perusal and an answer, and if a given M.P. has three or four or half a dozen applications for the same thing from as many different quarters he begins to think there must be influence at the back of the demand, and is moved accordingly. But that is not the only reason why every member and every society should do his and its best. Members of Parliament, like other human beings, have certain weaknesses, and one of their weaknesses is to be differently moved by different arguments. The argument of the R.C.V.S. may not at all appeal to one member or one section of M.P.s, but it appeals to another. Similarly, the argument of one veterinary surgeon may appeal to a certain member who is quite impervious to all other arguments. And in regard to veterinary matters the general public is caught by most unlikely reasons. Let each member, then, think out the position for himself, put it as directly and in as few words as possible, and send it *to the politician he personally knows.* A member will read and consider the views of a known person when he will promptly forget or ignore those of a stranger. Our profession, whether as individuals or corporations, cannot do too much to influence Parliament in this matter; and the individual must bear in mind that although no good may accrue to him immediately and directly, yet it is absolutely to his advantage to obtain the recognition we seek, both because it enlarges our collective loaf, and because to be brought in contact with the medical world on an equal footing, and to accept equal responsibilities, must powerfully act in raising our status. *This* is the way to improve our position. First get the office, then show ourselves worthy of it. With somewhat these ideas I set out to assist in obeying our President's instructions.

By careful search I discovered thirteen members of Parliament* with whom we, as a firm, have relations, and a fourteenth (Mr. Goschen) who was the member for the division. Among these were five Scotch members, who can alone vote on Scotch questions. To each of these I sent the following letter, together with an abstract of the bill *with the necessary amendment inserted in red ink*:

Re PUBLIC HEALTH (SCOTLAND) BILL.
Unsound Food.

To ————, Esq., M.P.

Sir, the above Bill will, I believe, shortly come up for second reading.

I wish respectfully to direct your attention to the clauses marked in enclosed abstract, and to beg your support and influence for the purpose indicated below.

Clause 57 recognises the necessity for veterinary assistance in diagnosing animal diseases, and greatly curtails the power of the Medical Officer unless acting in common with a veterinary surgeon. Clause 40, however, gives the medical officer power to enter premises to inspect and examine and, if necessary, seize and carry away any animal intended for the food of man.

Now if the assistance of a veterinary surgeon is needful in the one case, it certainly is in the other; and, with due respect, I submit it is absolutely indispensable in both.

The great and almost insuperable difficulties all medical men have to meet in dealing with animal diseases are (1) the occult character of such diseases, and (2) the fact that similar diseases manifest widely different symptoms in man and animals respectively.

The medical man bases his diagnosis largely on subjective symptoms, *i.e.* on what his patient *tells* him; the veterinary surgeon solely on objective symptoms, *i.e.* on *what he can detect for himself.* Hence the medical man confronted with a case of *animal* disease is usually hopelessly at fault.

As after passing the preliminary examination of the General Medical Council (like every medical man) a veterinary student must work hard for at least four years to acquire the special knowledge needed for obtaining his diploma, it is perhaps not unfair to suggest that any medical officer would require several years at least, after his appointment, to fully fit himself for examining animals for disease.

To appoint medical officers for this purpose, however, when a large body

---

* The names and constituencies are—

ENGLAND.

Capt. H. M. Jessel, St. Pancras.
E. Boulnois, Esq., Marylebone.
Hon. G. J. Goschen, St. George's, Hanover Square.
Hon. A. de T. Egerton, Knutsford (Cheshire).
Hamar A. Bass, Esq., Staffordshire.
A. Strauss, Esq., Cornwall (Camborne).
Sir F. Lockwood, Q.C., York.
T. Courtney Warner, Esq., Staffordshire).
John Rutherford, Esq., Darwen.

SCOTLAND.

C. L. Orr-Ewing, Esq., Ayr Burghs.
Alex. Cross, Esq., Glasgow.
Col. J. Denny, Kilmarnock.
J. W. Crombie, Esq., Kincardineshire.
Jas. Hozier, Esq., Lanarkshire.

of trained experts exists, whose sole business in life is to diagnose animal disease, would not only be detrimental to the public interest, but would certainly end in disastrous failure.

Every veterinary surgeon must now pass a stringent examination in hygiene, meat inspection, the methods by which diseases are transmitted from country to country and from animals to man, as well as in the many other subjects comprised in his college curriculum, before being licensed to practise by the Royal College of Veterinary Surgeons. I therefore trust and most earnestly beg you will use your influence to have the inspection of animals referred to in clause 40, and that of meat, performed by veterinary surgeons, or, at the very least, to make it incumbent on the medical officer to be accompanied by a veterinary surgeon, as provided for in clause 57. Thanking you in anticipation, I have the honour to be, sir,

Your obedient servant,

Jno. A. W. Dollar, M.R.C.V.S.,
A Vice-President of the Royal College
of Veterinary Surgeons.

The letter is somewhat long, and the arguments selected *ad hominem*. Though usually averse to the course, I have in the above instance made mention of the office conferred on me, because I thought it might lend weight to argument.

This letter has brought me a large number of kindly replies, and in one instance a long personal interview. In none has the answer been unfavorable, and I feel sure that, of the many other members of the profession who have communicated with their representatives in Parliament, almost all have a similar result to record. The claims of the profession have only to be fairly presented to be at once allowed. Wherever members receive favorable answers these should be published, both in acknowledgment of the courtesy shown us and to encourage those veterinary surgeons who have not yet taken action to act promptly. The second reading of the bill occurred on 22nd March, but the committee stage has not yet been entered on. Whoever can exert influence should at once do so.

ANOTHER OUTBREAK OF PLEURO-PNEUMONIA.

Our readers will remember that an outbreak of pleuro-pneumonia was discovered in January last in London, and now we have to report that another outbreak has occurred on the same premises. The whole of the cows, some thirty or forty in all, have been slaughtered, and in eight evidence of the disease was found. It is probable that an old encysted case which was discovered during the *post-mortem* examinations in one of the animals had been the source of infection for the others, and it appears that this

animal had been purchased in the Metropolitan Market from a dealer who resides in Buckinghamshire.

NEW GENERAL RABIES ORDER.

The Board of Agriculture has issued a new General Rabies Order dated 23rd March, and also upon the same day a Muzzling Order for the Metropolitan Police District. The latter is practically an area within fifteen miles radius of Charing Cross, and includes the County of London, County of Middlesex, City of London, Borough of Croydon, Borough of Kingston-on-Thames, Borough of Richmond (Surrey), Borough of West Ham, and such parts of the counties of Essex, Hertford, Kent, and Surrey as are situate within the Metropolitan Police District.

This Muzzling Order and General Rabies Order are doubtless the firstfruits of the recommendations of the Departmental Committee appointed to inquire and report upon the Working of the Laws relating to Dogs, and since future orders will doubtless be issued on lines laid down in the report, we give below the recommendations of the committee. Probably most of our readers will agree that "what is necessary is that the Board of Agriculture should have regard to the country as a whole, and should impose muzzling over considerable areas, irrespective of the boundaries of boroughs or counties; that the Board should impose it, in fact, where it is really required, and leave the rest of the country free. We believe that much of the feeling against the present capricious and ineffective system of partial and uncertain muzzling will not show itself against the operation of a centralised system carried out on well-considered lines, and effectively producing the result which all desire to see achieved, viz. the suppression of rabies." We hope effect will be given to this recommendation, and that the Board will deal with the rabies question in no half-hearted manner.

In the General Order under *post-mortem* examination we read that "when an animal has died of, or has been slaughtered on account of rabies, or disease supposed to be rabies, the local authority shall, previous to the disposal of the carcass, cause a *post-mortem* examination to be made thereof, in which case such examination shall be conducted by a veterinary inspector or veterinary surgeon specially appointed in that behalf, who shall forthwith report to the Board," &c. Unfortunately there are no definite lesions ascribed to rabies,—indeed, *post-mortem* examination of a

rabid dog may reveal nothing pathognomonic, consequently mere dissection must be unsatisfactory. Culture experiments are futile, the organism is unknown. Microscopic examination of the great nerve-centres is unsatisfactory, since no pronounced changes are described as typical of rabies; the only satisfactory test is inoculation, and this cannot be done by anyone, nor in any place. Nor is it always convenient to send the brain to London; delay in transit may render the medulla unsuited for inoculation, and we think arrangements could be made by the Board at different centres for experimental work with a view to diagnosis, such as Manchester for Lancashire, Edinburgh and Glasgow for Scotland, Belfast, Dublin, and Cork for Ireland, &c., the work being placed in the hands of trained men, who would report with all possible speed the result of their investigations. Some method whereby a definite opinion can be given must be devised, because, as we all know, there is always a doubt as to whether a dog is rabid or not from the *post-mortem* evidence alone.

The following is a summary of the recommendations we have made:

1. That the Board of Agriculture in Great Britain, and, in the case of Ireland, the Lord Lieutenant and Privy Council, should make a determined effort to stamp out rabies by exercising directly the powers which they already possess under the Diseases of Animals Act.

2. That, following the extirpation of rabies, a general Collar and Registration of Dogs Order should be imposed in Great Britain and Ireland in order to procure more efficient control over dogs, and to diminish the evils which are caused by stray and ownerless dogs.

3. That in order to prevent the introduction of rabies into the United Kingdom, the Board of Agriculture in Great Britain and the Lord Lieutenant and Privy Council in Ireland should exercise the statutory powers which have been conferred upon them with a view to regulating and controlling the importation of dogs from abroad.

4. That in Great Britain it should be made—

   (i) The statutory duty of the police to aid in the enforcement of the law relating to dog-licence duties.

   (ii) That the whole, and not as at present a moiety, of any penalties recovered by the police, or on information supplied by them, should be paid over to the Police Superannuation Fund, or otherwise applied for their benefit.

   (iii) That lists of licences taken out, subdivided in a form convenient for reference, should be supplied by the Board of Inland Revenue to the various police forces.

5. That the determination of questions of exemption of farmers' and shepherds' dogs from dog-licence duty, and the issue of certificates of exemption, should be transferred, as far as England and Wales are concerned, from the Board of Inland Revenue to justices in petty sessions specially summoned for the purpose, and in Scotland to the authority exercising similar functions.

6. That the definition contained in Section 22 of the Customs and

Inland Revenue Act of 1878, of farmers' and shepherds' dogs for which exemption from duty may be obtained, should be amended, so as to make the intention of the Legislature less ambiguous.

7. That in Ireland the law be so altered that licence duty shall be payable for each dog that has attained the age of six months, and in this respect that the law be assimilated to that of Great Britain.

That failure to comply with the provisions of the law should subject the offender in each case to the payment of a double licence duty in addition to the penalty provided by Section 20 of the Dogs Regulation Act.

8. That in Great Britain the powers which county councils possess under Section 16 of the Local Government Act, 1888, and Section 57 of the Local Government (Scotland) Act of 1889, to make bye-laws for the prevention and suppression of nuisances, should be extended so as to enable bye-laws to be made for enforcing the keeping of dogs under control, and preventing the straying of dogs, or otherwise with a view to the protection of cattle and sheep from injury.

That legislation of a similar character, and with the same object, should be applied to Ireland.

9. That in order to secure greater uniformity and simplicity in the laws relating to dogs in the United Kingdom a consolidating and amending Act be passed, framed on the lines of the bills introduced for this purpose in the House of Commons in 1894 and the House of Lords in 1895.

10. That as regards Ireland, in addition to provision being made in such Act for the payment out of dog-licence duties, or otherwise of expenses arising from the seizure of stray dogs, moneys out of the same fund should be allocated for the purpose of providing suitable accommodation for their detention.

NORTH LONDON POLICE COURT.

Before Mr. D'Eyncourt.

On Monday, the 8th of March, A. Stagg, of Wick Road, Victoria Park, appeared to a summons at the instance of the Royal College of Veterinary Surgeons for assuming a title implying a special qualification in the veterinary art, to which he pleaded "not guilty." Mr. Thatcher prosecuted on behalf of the College, and stated that the defendant was a blacksmith, and had a place of business in Wick Road, Victoria Park, where a signboard was displayed with the following inscription:—"A. Stagg, Veterinary Shoeing Forge. Henry Shaw, M.R.C.V.S., attends daily."

Mr. Thatcher stated that there was a decided case upon the point, which he quoted, from which it appeared that the words "Veterinary Shoeing Forge" would be an infringement of Section 17 of the Veterinary Surgeons Act, 1881.

The defendant then withdrew his plea of "not guilty," and pleaded "guilty." He said he was a poor man, and did not know he was doing wrong.

Mr. D'Eyncourt inquired as to the means of the defendant, and was told by the Warrant Officer that he was a poor man. Mr. D'Eyncourt asked Mr. Thatcher if he would be satisfied with a nominal penalty, who in reply pointed out that the defendant had not acted in ignorance, as he had received a caution before any proceedings were taken. Mr. D'Eyncourt said the man was poor, and he should only inflict a fine of 10s. and costs; but he warned the defendant to alter his board at once,

for if he were brought before him again there would be a very much more severe penalty.

IVYBRIDGE PETTY SESSIONS.

Western Morning News, February 23rd, 1897.

IVYBRIDGE.—Before Messrs. J. D. Pode (Chairman), J. Yonge, C. E. Bewes, R. Ashley, J. Allin, and Rev. W. D. Pitman, Richard Shepherd was charged by F. W. Murray (for whom Mr. E. Ward appeared) with using the title of Veterinary Surgeon. Mr. Trehane defended, and said defendant used the words "Veterinary shoeing smith" in ignorance. Fined 10s. and 7s. costs.

Army Veterinary Department.

Extract from 'London Gazette' of March 2nd, 1897.

"The Queen has been pleased to grant unto each of the undermentioned officers in H.M. Army, her royal licence and authority that he may accept and wear the decoration signified against his name, conferred by his Highness the Khedive of Egypt, in recognition of active and distinguished service before the enemy during the recent expedition to Dongola:

"Veterinary Lieutenant W. D. Smith, A.V.D., 'Medjidieh,' fourth class."

DEPARTURES.—Veterinary Lieutenant E. Wilkinson embarked in ss. Rome, 26th ult., to proceed to India, to complete tour of foreign service.

Veterinary Lieutenant-Colonel A. Thomson embarked in P. and O. Himalaya on the 13th inst. for India, to take up the duties of Inspecting Veterinary officer, Punjab Command.

ARRIVALS.—Veterinary Lieutenant A. Smith arrived from India on 19th inst. on six months' sick leave of absence.

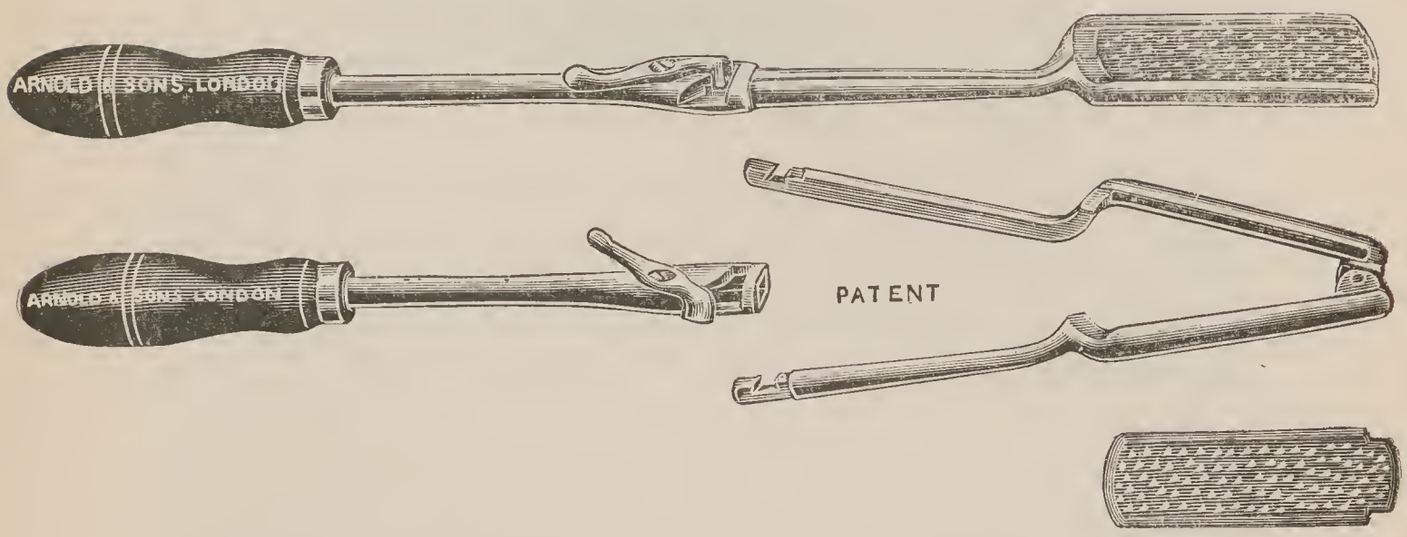
Veterinary Captain J. A. Braddell arrived from India on 16th inst., on six months' sick leave of absence.

Veterinary Colonel J. D. Lambert, C.B., Director-General Army Veterinary Department, attended the Levée held by H.R.H. the Duke of Connaught, at St. James's Palace, on the 15th inst., and presented the undermentioned veterinary officers:—Veterinary Captains J. A. Nunn, C.I.E., D.S.O., J. B. Savage, and A. J. Haslam; Veterinary Lieutenants J. Moore, H. T. Sawyer, H. M. Lenox-Conyngham, F. A. Shore, and W. A. Pallin.

New Apparatus, &c.

RELIANCE TOOTH RASP (PATENTED).

The illustration below shows a new form of tooth rasp which possesses many distinct advantages over those at present in use.



First, it is so constructed that any number of plates can be instantly fitted.

Second, it obviates breakage of removable rasp plates, as the clamp has simply to be opened, the plate inserted, and the instrument closed, when it is ready for use.

Third, four kinds of plates can be used, viz. fine cut, coarse cut, cut both ways, and file cut.

Fourth, extra plates can be supplied.

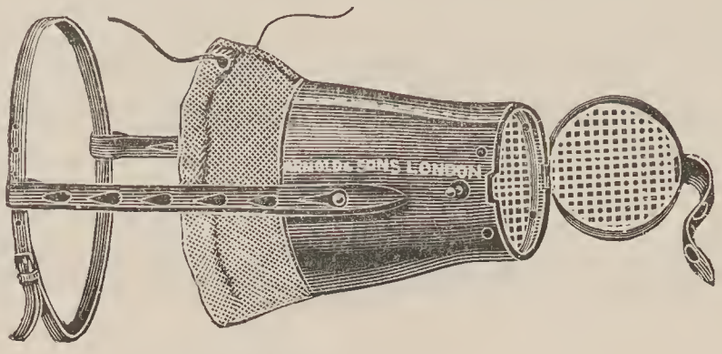
The rasp folds into very small space for carrying, and the makers claim that it combines lightness, strength, utility, and portability.

The patentees and manufacturers are Arnold and Sons.

A VAPOUR INHALER.

The illustration represents an inhaler, devised by Professor Hobday, for use in patients suffering from catarrhal discharge of the nostrils such as is present in some forms of distemper, influenza, and other diseases. It consists of a cylinder of leather having a canvas top which expands, and so fits any size of horse or dog, and a wire gauze bottom, on the lower end of which is fitted a second gauze cap for the purpose of containing a hot sponge medicated with some drug such as creosote, eucalyptus, &c. The

whole thing is fitted to the nostrils by straps. Its advantages are that it enables the steam to be thoroughly applied and carefully inhaled without fear of scalding, and



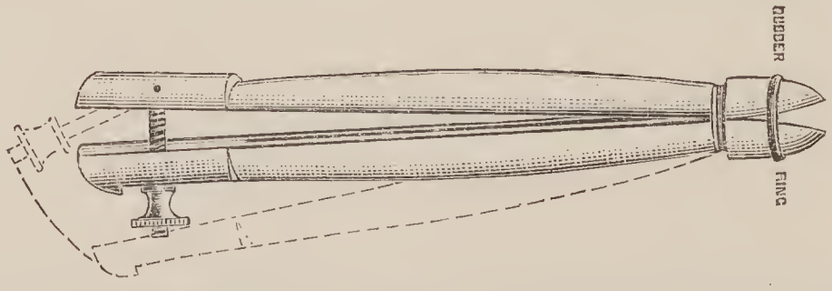
with the least possible objection on the part of the sick animal. Being made of material which is able to be disinfected, it can be readily cleansed each time after use.

The inhaler is made by Messrs. Arnold & Sons, West Smithfield, in sizes suitable for the horse and dog.

A NEW CASTRATING CLAM.

By Amos Wilkinson, M.R.C.V.S., Newport Pagnel.

As the castrating season will be soon upon us, the description of a clam, which I have devised and used with great success in the standing operation for several seasons, may be appreciated by those who adopt that method. It is much lighter and more easily manipulated than the clams at present in use. It is worked by means of a screw-nut which entirely obviates the necessity of clamp forceps, india-rubber band, ferrule, or string. When the fibrous tissues have been once cut through, the clam applied to the spermatic cord, and the testicle removed, all



danger of hæmorrhage ceases. An additional advantage attending the use of this clam is that upon the day following the operation it may be taken from its place without the inconvenience attending the removal of the ferrule or cord, upon which at present the blood is apt to coagulate. The clam is made by Mr. Huish, of Fisher Street, Red Lion Square, who suggested and applied a much lighter and quick-running screw-nut than in my original pattern.

THE SANITAS COMPANY, LIMITED.

The 20th Ordinary General Meeting of the Sanitas Company, Limited, the well-known disinfectant manufacturers, was held at their works at Bethnal Green, on Wednesday, the 24th inst. The sales for 1896 were considerably greater than those of the preceding year, and, after placing £1564 19*s.* 8*d.* to depreciation of patents and goodwill account, a final dividend was declared, bringing up the total distribution for last year to 13¾ per cent. The Managing Director (Mr. C. T. Kingzett, F.I.C., F.C.S.) reported the addition of a number of new articles to the list of the Company's products, including soluble pellets of a number of well-known antiseptics, such as permanganate of potash, carbolic acid, and peroxide of hydrogen. By dissolving one or more of these pellets (small tubes of which can be carried in the waistcoat pocket) in half a pint or so of water, a useful antiseptic for the use of surgeons and others can be very readily prepared on the instant. Another new disinfectant has been introduced by Mr. Kingzett, for which the trade mark, "Okol," has been coined, and the report of Dr. S. Rideal, who has made a thorough examination of its germicidal properties, supports the claim of the Sanitas Company that this preparation, which, by the way, is non-poisonous, is one of the most powerful disinfectants yet introduced. It is a milk-like liquid, which readily mixes with water in all proportions. The Sanitas Company now manufacture practically all kinds of disinfectants, sanitary compounds and appliances, in addition to their famous "Sanitas" fluid, powder, and soaps, and claim to be the largest disinfectant manufacturers in the world. Among their recent publications is a most useful book, entitled 'How to Disinfect,' a copy of which can be obtained free on application, and will be found of service in every household.

Correspondence.

To the Editor of The Veterinarian.

March 2nd, 1897.

Dear Sir,—I should be pleased if you would answer in your next edition the following questions.

Is it the correct thing, or is it legal, for a M.R.C.V.S. to open a

branch practice six miles from his residence, and put in a man who has never put his nose inside a veterinary college?

Is it professional etiquette for a M.R.C.V.S. to advertise his "Cattle spice" to cure everything?

Hoping you will answer these two questions, I remain,

Yours faithfully,

JOHN H. LOFT, F.R.C.V.S.

[Both our correspondent's questions must certainly be answered in the negative. Proper representations to the Registration Committee would be followed by that body taking prompt action against the offender.—ED., *Veterinarian*.]

Notices to Correspondents.

To ensure the publication of communications in the coming number they should arrive by the 15th of the month.

Will Contributors kindly note that, for illustrative purposes, the following are the best processes in order of merit?—Good Indian ink line-drawings, on stout white paper or cardboard, crayon drawings, photographs with good contrasts of light and shade, bold sketches in sepia. Sketches in lead pencil are very difficult to reproduce, and are not satisfactory.

The drawing should be considerably larger than the subsequent illustration is to appear; the reduction fines the lines and greatly improves the appearance.

Letters, Articles, Reports of Cases and of Veterinary Meetings, should be addressed to THE EDITOR, 'VETERINARIAN,' ROYAL (DICK) VETERINARY COLLEGE, CLYDE STREET, EDINBURGH.

The Editor does not hold himself responsible for the sentiments expressed by contributors, nor can he undertake to return rejected papers. He will be happy to advise and assist as far as possible, by letter, correspondents who may desire information regarding cases, instruments, or books.

Practitioners who are able to obtain specimens of horse embryos are reminded that they will be very acceptable, and the more so the smaller and younger they are. The exact age should be ascertained if possible; and to prevent *post-mortem* changes the specimens should be placed in a mixture of two thirds methylated spirit and one third water in a bottle, or if large, wrapped round with tow or cotton wool saturated with methylated spirit, packed and sent, carriage unpaid, to Professor EWART, University Old Buildings, Edinburgh.

Important.—The proprietors of the *Veterinarian* invite suggestions and criticisms from their readers tending to improve the Journal. Please address all letters to the Proprietors, care of Messrs. Adlard and Son, 22½, Bartholomew Close, E.C.

TO CONTRIBUTORS.—Will Contributors of clinical Articles kindly notify on their MS. whether they desire reprints? as unless this be done type will be broken up, and reprints cannot afterwards be furnished.

JOURNALS, MAGAZINES, NEWSPAPERS, ETC., RECEIVED.

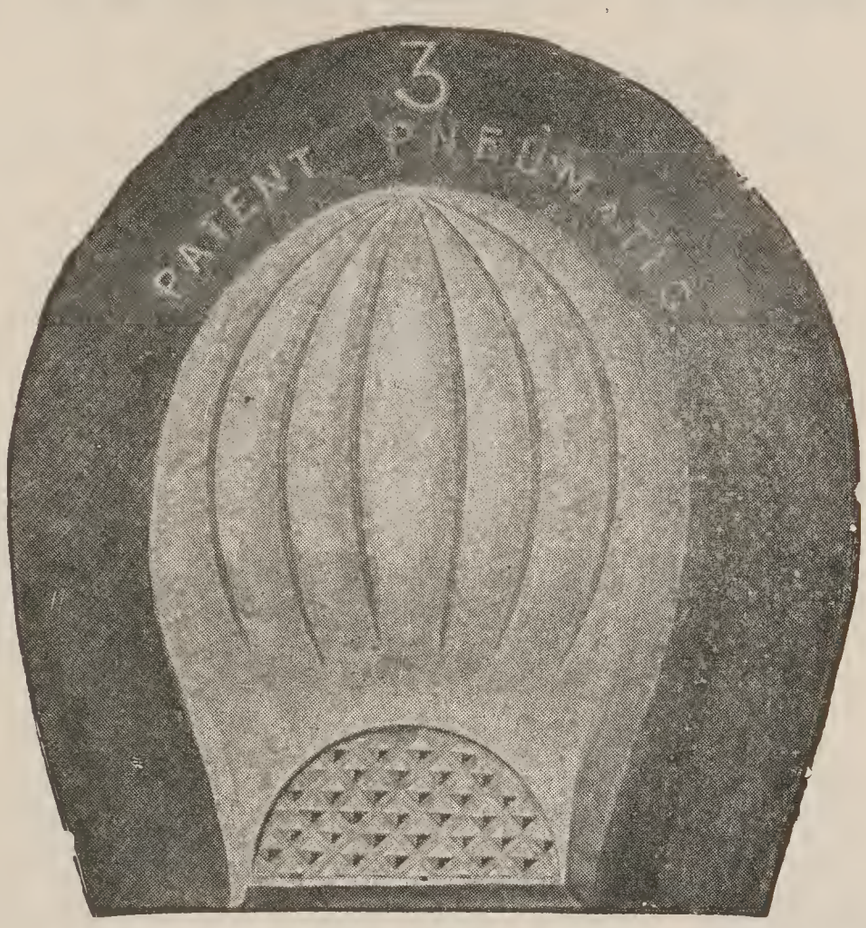
Annales de Médecine Vétérinaire. Revue Vétérinaire. Recueil de Médecine Vétérinaire. Berliner Thierärztliche Wochenschrift. The Veterinary Record. The Field. The Lancet. The British Medical Journal. Live Stock Journal. Sunderland Daily Echo, &c.

Communications, &c., have been received from Captain R. W. Burke, F.R.C.V.S., Messrs. P. Scott Falshaw, M.R.C.V.S., Jno. McDougall, M.R.C.V.S., Robert McGregor, M.R,C.V.S., Clement Baxter, M.R.C.V.S., and others.

THE AJAX

PNEUMATIC HORSESHOE PAD.

SHEATHER'S



PATENT.

THIS MOST PERFECT AND SIMPLE IMPROVEMENT IN HORSE-SHOEING

1. Prevents concussion.
2. Prevents slipping.
3. Keeps the foot cool by rapid alternate ingress and egress of air.
4. Preserves and restores action.
5. Prevents balling, gathering nails, &c., and forging.
6. Is very light.
7. Remains effective till the last when used over all classes of road.
8. Often wears out three or four sets of shoes.
9. Gives a strong TOE grip in the hind foot, and obviates the dangers of screws and cogs.
10. Is most economical, owing to great durability and effectiveness.
11. Is as easily fitted as a leather sole.
12. Gives the horse confidence and security, sparing him ineffective muscular exertion.

Descriptive Illustrated Circulars and Price Lists sent free on Application to

THE PNEUMATIC HORSESHOE PAD CO.,
7 GARRICK STREET, LONDON, W.C.

ALL VETERINARY SURGEONS AND BREEDERS SHOULD USE

JEYES'

DISINFECTANTS, FLUIDS, POWDER & SOAPS,

PREVENTS AND STAMPS OUT SWINE FEVER.

"JEYES' FLUID"
THE BEST DISINFECTANT.

NON-POISONOUS. VERY HEALING IN USE.

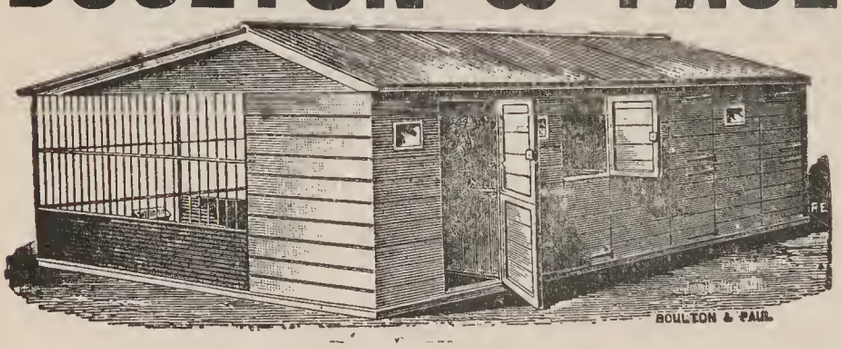
IN BOTTLES, TINS, DRUMS, AND CASKS.

Write for copies of Testimonials from Professor McCall, Professor Froehner, John Taylor, Esq., M.R.C.V.S., and many other Authorities.

HEAD OFFICE—

64, CANNON STREET, LONDON, E.C.

BOULTON & PAUL, MANUFACTURERS, NORWICH.



HOSPITAL KENNELS

Well ventilated without draughts.

No. 121. Range of Dog Kennels and Covered Run.

Fitted with doors front and back, sliding ventilators to admit light and air to each Kennel, matchboard and felt ceiling at eaves, level, ensuring a comfortable temperature at all times of the year.

Cash Price, Carriage Paid.

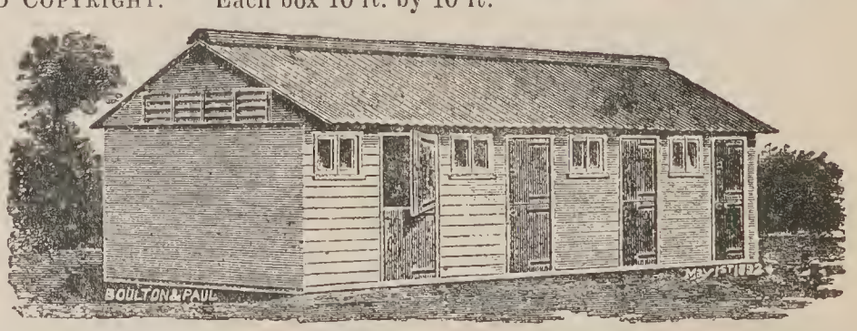
Four Kennels and Runs (as illustrated) each house 6 ft. by 5 ft., and each run 8 ft. by 5 ft.	...	£39	15	0
Two Kennels and Runs	,,	,,	,,	,,	...	22	0	0
One Kennel and Run	,,	,,	,,	,,	...	12	0	0

Prices of larger sizes on application.

No. 614.—RANGE OF WOOD BOXES FOR HUNTERS AND FOR WINTERING YOUNG HORSES.

REGISTERED COPYRIGHT. Each box 10 ft. by 10 ft.

GROOVED and tongued weatherboard walls, stained outside with our preparation. Galvanized corrugated iron roof with felt and matchboard lining for same. Ventilating windows protected with wrought iron bars. Ridge ventilator. In sections, ready for purchaser to erect.



Approximate Cash Prices.

One Box ...	...	£12	10	0
Two Boxes	...	24	0	0
Four Boxes	...	47	10	0

Latest Catalogue, profusely Illustrated, of Requisites for the Stable Kennel, Poultry Yard, Aviary, Pheasantry, Park, Estate, Garden, &c., free on application.

THE VETERINARIAN

REPORTS OF SOCIETIES.

MARCH, 1897.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the Association was held at the Great Western Hotel, Reading, on Friday, February 26. The President (Mr. Albert Wheatley, F.R.C.V.S., of Reading) took the chair at 2.45, when there was a large attendance, including Prof. McFadyean, Sir Henry Simpson, Windsor; Messrs. J. Sutcliffe Hurndall, London, hon. sec.; J. F. Simpson, Maidenhead; Jas. P. S. Walker, Oxford, hon. treasurer; P. Irving, Chipping Norton; F. W. Willett, Staines; E. J. Mellett, Henley; R. Page Bull, Deddington: R. J. Verney, Oxford; E. Percival Owen, Thame; Wm. Wilson, Berkhampstead; G. E. King, Abingdon; R. C. Tennant, Windsor; C. Raymond Neale, Henley; A. L. Butters, Wm. Hunting, F. W. Wragg, H. G. Rogers, F. W. Dowell, London; E. C. Howard, Newbury; W. G. Flanagan and John A. Craft, Reading; also Messrs. W. Pauer, Blackwater; C. Sanderson, Oxford; J. Stewart Wood, Walton-on-Thames; and A. Cartwright, Henley, visitors.

Mallein and Glanders.

The Hon. Sec. read a circular communication from the West of Scotland V.M.A. on this subject.

Mr. Wragg moved "That this Association recognises the value of mallein, and trusts that all support will be given the adoption of the suggestion of the West of Scotland Association by the Board of Agriculture." He reminded the meeting that similar resolutions had been passed by the Midland Counties at Birmingham, and the Eastern Counties Association at Norwich. He believed, however, that an Act of Parliament would be required to get compensation paid out of the Imperial funds.

Mr. J. F. Simpson seconded.

Mr. Hunting said the fault of the resolution, as far as he could see, was that it desired them to ask the College to apply to the Board of Agriculture to enforce the use of mallein and to pay compensation out of the Imperial funds. At the present time the Glanders Order was carried out by Local Authorities, and all compensation

was paid out of local funds. To compensate from Imperial funds would require an Act of Parliament, which it was not at all likely they would get, so that they would be merely wasting powder and shot. If they simply approved of mallein he thought it quite possible the Board of Agriculture would pay some attention to their suggestion.

Mr. Simpson said that under those circumstances he saw nothing for it but to confine themselves to expressing approval of the use of mallein.

Mr. Rogers thought it might be wise to approve the first portion of the Scottish resolution, and then give the reasons, as clearly put forward by Mr. Hunting, as to why they could not approve the second portion. As they all knew, Mr. Hunting was a high authority on the question.

Mr. Wragg said he would be prepared to amend his resolution to read "That this Association recognises the value of mallein as a diagnostic agent in glanders, and hopes it may be adopted by the Central and all Local Authorities."

Mr. Rogers pointed out that the agent was constantly adopted already by the Central and Local Authorities, but they would probably not pin themselves to its use alone as a diagnostic agent, as they relied on the clinical observations and the experience of their experts.

Mr. Hurndall would like to be quite clear upon the matter, so that in replying to the communication he might show the Association had discussed the matter in an unbiassed manner, and had also arrived at something like a definite conclusion. With all respect to Mr. Wragg, his resolution avoided two very important points —first, should the use of mallein be compulsory, and secondly, was compensation to be paid, and if so how.

Mr. Hunting seconded Mr. Wragg's amended motion.

Sir H. Simpson thought they should either let the letter lie on the table, defer it for further consideration, or approve it. They would not help the West of Scotland Society by mutilating their resolution or by sending up a different one.

After further discussion,

Mr. Wragg withdrew his motion in favour of the following, which was proposed by Mr. Dowell, and seconded by Mr. Rogers, after consultation with the Secretary :—"That in the opinion of this Association when glanders occurs in a stud of horses compulsory testing with mallein should be performed upon each animal in the stud, and each horse which responds to the test and is therefore glandered accorded to the test, should be thereupon slaughtered and compensation paid to the owner."

This was carried *nem. con.*, and on the motion of Mr. Wragg, seconded by Mr. Mellett, the Hon. Sec. was in-

structed to communicate the resolution to the secretary of the West of Scotland Association.

THE ROADS SAFETY ASSOCIATION.

A communication from this body was next read; and on the motion of Mr. Simpson, seconded by Mr. Irving, it was resolved that the secretary inform the secretary of the Association that the letter had been laid before this Association.

Letters expressing regret at being unable to attend the meeting were read from Mr. S. H. Slocock, Hounslow; Sydney Villar, Harrow-on-the-Hill; and Prof. McCall, Glasgow.

Sir H. SIMPSON proposed that the meeting of the Association on the last Friday in June be called at Reading, and formally adjourned. June would be so exciting a month owing to the jubilee, and would also be so near the visit to the town of the National Association, that they could not this year hope for a successful summer meeting. (Hear, hear.)

Mr. WILSON seconded the motion, which was carried unanimously.

POST-MORTEM SPECIMENS AND CASES OF INTEREST.

The company then adjourned, on the invitation of the President, to Mr. Flanagan's livery yard opposite the Hotel, where Mr. Wheatley showed them three horses which presented interesting features. The first was a mare with a good case of naviculararthritis in the near fore-foot, on which an "expansion shoe" brought out by a smith in Reading was tried. Another was an old mare with an old fracture of the off knee bone, and the third a case very similar to one he had some time ago, in which Prof. McFadyean found disease of the pancreas as recorded in *The Journal of Comparative Pathology and Therapeutics* for the year 1896.

Returning to the room,

Mr. KING showed two interesting post-mortems specimens. The first was the heart of a two year-old cart filly, which died very suddenly at the beginning of the week. She had, he said, been noticed to be pining and gradually losing flesh, and her legs had swollen. No treatment of any kind had been adopted. In making a post-mortem at the request of the owner he found the heart shown, which had enormous vegetations on the valves.

Mr. SIMPSON had never seen such a case in a horse before. It reminded him somewhat of the growths one occasionally found on the valves in cases of swine erysipelas. He would much like to hear Prof. McFadyean's views on the case.

Prof. MCFADYEAN must disclaim the ability to be able to say from a minute's examination the nature of the evil; but he had no hesitation in saying that the lesions of the valves of the heart were due to the propagation of bacteria of some sort there. As Mr. Simpson had said,

the appearance very closely resembled the lesion found in chronic swine erysipelas. He had seen a number of cases that had identical lesions, and had been very anxious for a long time to obtain specimens so fresh as to enable one, with some chance of success, to try to obtain knowledge of what organisms actually were present. It was unusual, he thought, to get endo-carditis as a primary affection in any animal. Usually it was secondary to something else—disease of the lungs or some other part, the primary disease marking the place where the organism which invaded the body was propagated. After it had gained the blood system it settled on the valves of the heart, and then it might set up an illness of indefinite duration. A curious feature in this case was that, as he should judge, the affection must have been in existence for some weeks without the animal having been observed to be in a state of high fever.

Mr. King said the attendant told him that the filly, when a foal, had an enlarged navel, but so far as he knew no attention was called to it.

Prof. McFadyean said possibly that might have been the cause, though he thought the lesions were rather softer than one would have expected to find in a lesion of that age.

Mr. Hurndall was rather surprised to hear Mr. Simpson say he had not come across cases of that kind in the horse. He believed it was by no means an uncommon condition in the racehorse, and he could name two horses which were very peculiar in their performances—Danby Dale and Pensioner. Pensioner, only about three years ago, was favourite for a race, but fell dead after passing the post. He had some communication with the gentleman who made the post-mortem in those two cases, and he was told that in both cases there were vegetations on the valves of the heart. From examination of a fairish number of horses he had come to the conclusion that many horses called non-stayers, and in the case of which the trainers attributed the want of staying qualifications to defects of the respiratory organs, really had defects of the heart; and in many instances he had formed the conclusion that there probably were growths on the valves of the heart. There was no doubt as to that, he thought, in the case of the two horses he had named. Danby Dale was a very noted horse as a five-furlong sprinter, but on many occasions he would shut up at the end of three furlongs in the most unaccountable manner, whereas another day he would win his race with any amount in hand. He fell dead in his box, and the post-mortem revealed these vegetations. He had his own views as to what could be done to relieve such a condition, but would not weary the meeting with them.

Prof. McFadyean thought it highly improbable, not to say impossible, that an animal with a heart in that condition should be capable of severe exertion, even such

as running two furlongs in a race. He based that opinion not on any experience he had had with reference to similar lesions in horses, but upon what they knew about similar lesions in human beings, in pigs, and other animals. A pig that was subject to endo-carditis to any large extent would exhibit distress when very slightly exhausted, and then would not infrequently drop down dead. He had listened with interest, and with some surprise, to what Mr. Hurndall had said with reference to the racehorse Pensioner. A good many present might recollect that, as Mr. Hurndall had stated, Pensioner dropped dead on the racecourse. That was a case in which very strong suspicions were entertained by the owner of the horse, Gen. Williams, that the animal had been the victim of foul play. He himself had the opportunity of examining some of the internal organs of Pensioner, and he was in close communication with the gentleman who made the post-mortem. If the animal was the subject of endo-carditis the fact was concealed from him, and he thought he had some ground of complaint on that point. It was never stated to him that lesions like those had been discovered at the post-mortem. On the other hand, the horse's stomach, when brought to him, gave evidence of very intense gastritis. The analysis was not quite conclusive in its results, although the chemist believed he was able to extract from the contents of the stomach an irritant oil. He thought the suspicions were certainly not removed that Pensioner died from foul play.

Mr. Butters related a case of a racehorse which had those vegetative growths on the heart. It was a three-year-old named Pendulum, of which great hopes were entertained, but it never did anything. He was ill for some weeks, and sometimes displayed swelling of the hocks, sometimes of one leg more than the other, and pain ; the appetite failed, and the end was sudden. The horse could not do anything in the way of exercise—could not gallop a course. There the post-mortem showed those growths on the heart. They were not suspected during life, and indeed the horse was treated for dropsy. He had often looked for those growths, but that was the only occasion on which he had seen them in a horse.

Mr. J. F. Simpson entirely agreed with Prof. McFadyean's remarks as to the inability of a horse with such growths on the heart to do training work. As Pensioner had been mentioned, he might say that on one or two occasions Pensioner was a patient of his, and never, when he attended him, had he the slightest suspicion of heart mischief. Had there been such growths of any magnitude he could hardly have overlooked the fact that the animal was affected with valvular disease of the heart.

Mr. King exhibited a cyst which he removed from a sow which he was examining, as it was supposed to be

suffering from swine fever. The cyst, which he found in connection with the omentum, was about the size of a large orange, and had some calcareous particles inside.

Mr. J. F. Simpson then showed a specimen which he had brought, he said, not because the disease—melanosis—was uncommon, or because he thought veterinary surgeons were unacquainted with it, but because the older practitioners were taught that those melanotic tumours were found mainly, if not exclusively, in grey horses. The teaching of the present day was correct, for that those tumours were found in other coloured horses and in animals other than the horse, was undoubted. At the time he sent the specimen on the table to Prof. McFadyean that gentleman had been lecturing on tumours. This one was taken from a cow, in which animal it was not common, and when found in the cow he believed Prof. McFadyean said it was generally found in connection with either the elbow-joint or the hock, and generally in young animals, and animals either brown or red in colour. Now in this case the tumour was on the side of the neck, opposite the cervical vertebræ, and it was an exceptionally large one, weighing 4½lbs. Further, the cow was black and white in colour. Mr. Simpson showed that when cut the tumour was a beautiful example of the disease.

Mr. Hurndall, in proposing a very hearty vote of thanks to those gentlemen who had been kind enough to introduce the specimens they had seen, observed that the proposition came from the secretary of such an association with considerable feeling, because it was not an easy matter to usefully occupy the time of such a meeting when other business precluded the introduction of a formal paper for discussion. (Hear, hear.)

Mr. Butters seconded, remarking that the specimens were a very agreeable and interesting part of their proceedings. The vote was passed by acclamation.

PRESIDENTIAL ADDRESS.

By A. Wheatley, F.R.C.V.S.

Gentlemen,—It is now my pleasing duty to return you my sincere thanks for electing me your president for the year 1897. When I consider the great honour you have conferred upon me in so doing, I must frankly acknowledge that I feel incompetent to carry out efficiently those duties devolving upon the chair in so eventful a year as this bids fair to be. Bearing in mind that in August next we are to have here in Reading the Annual Meeting of the National Veterinary Medical Society, we one and all wish that meeting to be a great success. I most sincerely hope that 1897 may be a record year, and that we shall all look back on it as a "red letter one" in our annals. If it should prove so, I

shall be happy in thinking that I had the presumption to accept office at such a period. I can only say that I will use my utmost endeavours to make this year a success, and if energy on my part will contribute to this end, no effort shall be wanting. It is now some seven years since I had the privilege of acting as your president and I must say that I am flattered by your again electing me to preside over your meetings in 1897, and I can only reiterate what I said when addressing you in London last November, that I will do my best to further the interests of the Royal Counties Veterinary Medical Association.

I feel that there are a number of ways in which each individual member of this Society may further its interests, namely, by reading papers, by showing pathological specimens, and by recording cases. Either of these bring about discussion, by which we may derive mutual advantage. No one knows better than myself that a certain amount of self-assertion is essential to overcome the natural diffidence so frequently felt by our members (when on their hind legs). The initial difficulty most of us feel when addressing others of our profession is a bar to that freedom of expression which all of us should seek to attain by overlooking self-consciousness and trying, on all suitable occasions, to add our quota to the common knowledge. I will therefore ask you gentlemen to assist me by bringing forward any matter of interest that lies in your power, so that our meetings may be instructive and profitable, as well as affording social enjoyment.

The veterinary profession needs no champion when we consider the strides it has made of recent years in its social aspect; for we number amongst our members, I am proud to say, gentlemen who have had bestowed on them titles and honours, as Knights, Commanders of the Bath, Justices of the Peace, and other positions of eminence. Such preferments redound to the honour of the individual as well as the profession they adorn. Again, in our everyday practice we cannot fail to see how much better we are treated than we formerly were ; a client asks one to lunch or dine with his family circle and one is introduced to his friends. This may be regarded as real progress if contrasted with the time when one was expected to ring at the back door and wait in the butler's pantry. All these improvements go to show how much better we are appreciated by our clients.

We cannot all be authors and specialists, but we can show our practical usefulness to our clients, and by our advice demonstrate our worth, and by our instruction in hygiene and stable management show that our interests are those of our employers. Thus bringing about that friendly intercourse which is sure to result not only in gain to ourselves, but respect for the profession to which we have the hononr to belong.

I feel keenly the debt of gratitude we (the rank and file of the veterinary profession) owe to our scientists for their acumen in bringing to light many, until recent years, unexplained phenomena. In the realm of bacteriological science research has demonstrated the closer relation between cause and effect, and the practitioner cannot be accused of being slow to apply the valuable indications resulting from the painstaking investigations carried out in the laboratory. We are not all endowed with those qualifications necessary to elucidate the pathological changes that take place. Neither have we the essential appliances and accomodation for such work We are therefore under a deep obligation to those gentlemen of our profession who give up their lives to such research, and we readily acknowledge their worth.

I regard it as true that the careful clinical practitioner who correctly interprets each sign or symptom of disease as it appears is, in his department, as highly trained and useful a person to the community as the bacteriologist who more often secures public recognition. But science and practical observation should go hand in hand.

As "time waits for no man" I must be drawing to a conclusion, and will do so by thanking you for a patient hearing, and sincerely hope that the interests of the Royal Counties Veterinary Medical Association may not suffer by your selection of a president for the year 1897.

A highly successful meeting closed with a very hearty vote of thanks (also, needless to say, passed by acclamation) to the President for his address and for his conduct in the chair—proposed by Mr. Walker, and seconded by Mr. Irving.

The Annual Dinner.

After the meeting about 50 gentlemen sat down to a most *récherché* dinner at the hotel, on the kind and hospitable invitation of the President, Mr. A. Wheatley, who presided, faced by Mr. G. E. King in the vice-chair. His guests included, in addition to the gentlemen named above, Prof. Macqueen, Drs. Cox, Roberts, Wilcockson, and Holden, Prof. Gilchrist ; Councillors W. Bonny, and A. H. Bull, Reading ; Messrs. W. H. Davidson, Hungerford ; G. A. and T. W. Lepper, Aylesbury ; J. McKerlie, Hungerford ; Walter Western, Bracknell ; Stanley Harris, Giles Ayres, P. Simpson, T. Stainton, Pauer, W. Dale, Rupert L. Clarke, A. C. Butler, and others.

The Chairman said it was an old and a good custom to drink the health of Her Majesty the Queen at all festive meetings of Englishmen. The Queen in many ways interested herself in veterinary and agricultural matters. This was a record year, for it was the year of the longest reign in English history, and he asked them to drink with special enthusiasm the health of Her Majesty the Queen—God bless her ! (Cheers.)

The next toast, "that of the Prince and Princess of Wales and other members of the Royal Family," was also given by the CHAIRMAN, who suitably alluded to the interest taken by the Royal Family in hunting, racing, shooting, fishing, and other branches of sport.

Both toasts were drunk with the greatest loyalty.

Sir HENRY SIMPSON proposed the toast of "The Navy, Army, and Reserve Forces." With regard to our first line of defence, they all knew that the British navy was very powerful, and it had need to be powerful. He hoped Englishmen would not rest satisfied until their navy equalled the combined navies of any two of the European powers. (Hear, hear). It was essential that our lines of communication should be kept open, else, however gallant our land forces might be, they might die of starvation. Our army was necessarily small ; but it was free, and he trusted that, as at present, there would always be sufficient spirit in the land to keep the ranks full without a resort to conscription. (Hear, hear.) Our army, though small, was almost the envy of the world. Continental nations, who had their hundreds of thousands of men under arms, could not understand how we could be content with so small an army ; but our reply was that every man was a volunteer, and would fight with ten times the pluck of a pressed man. (Hear, hear.) The army had particular charms for a gathering such as that, because so many of their comrades were serving Her Majesty as regimental or Army Veterinary Department surgeons. Those posts in the army were filled at the present time by some of the most able members of the veterinary profession. He would allude with especial pleasure to the Vaccine Institute which was carried on at Aldershot under the charge of veterinary officers. They were aware that the whole of the vaccine used for the British army and the wives and children of our soldiers was supplied from lymph procured from animals under the direct control of gentlemen connected with their own profession, and he thought that was a matter of congratulation. (Hear, hear. With regard to the auxiliary forces, he was sure they wished well to them all. Here again the profession played a not unimportant part, many members holding Her Majesty's commission in various regiments of Yeomanry. Looking at the progress the profession was making, he thought the recognition given to those officers was a very high appreciation of the way in which they were regarded in the country generally. (Hear, hear.) He need say nothing in praise of the volunteers. They were a very large body of men, drawn from the best stock in the country ; they knew their drill thoroughly well and could shoot straight ; and should an emergency arise they would prove of immense advantage to the defence of the country. Beginning as they did in a shower of ridicule, our citizen soldiers had lived all that down, and had gained the respect and honour of all Englishmen. (Hear, hear.) He coupled

with the toast the name of Lieut. Giles Ayres, of the Royal Berks Yeomanry, remarking that everything with which that gentleman's name was connected would always receive a hearty reception in the town of Reading. (Applause).

Lieut. Ayres, R.B.Y.C., suitably responded to the toast.

In proposing "The Veterinary Profession," Mr. Stanley Harris said he hated speech making: he would sooner ride across country any day. As far as he could see, he feared their branch of the medical profession was not half enough appreciated. Directly a man was seedy he sent for the doctor; but 19 out of 20, when they had a valuable horse out of sorts, let their groom try a bit of "amateur vetting," and afterwards sent to a practitioner to pull them out of the trouble that course had got them into. He coupled with the toast the name of Mr. James Simpson, who was President of the Royal College last year, and had been more than once Mayor of Maidenhead. (Applause.)

Mr. Simpson said apologies had been made by previous speakers for the selection which had been made in naming gentlemen to propose and respond to toasts that evening; and following their example he must say that, much as he appreciated the honour, he thought the response to this toast would have been better placed in the hands of his friend Professor McFadyean. He said that for the special reason that for the past few weeks the Professor had had the happiness, or perhaps un-happiness, of unearthing many mouldy volumes in order to make himself thoroughly acquainted with the gradual, yet at the same time rapid, progress which the veterinary profession had made during the past fifty years. (Hear, hear.) Professor McFadyean had within the past week been delivering to the Midland Counties Veterinary Association a lecture, not only on the progress which the profession had made, for he had gone further than that, having come out in the shape of a prophet, and had told his audience what there was in store for the members of the veterinary profession. He (Mr. Simpson) was not able that evening to say exactly what was the future of the profession; but he did say that if during the next fifty years the profession made the same progress that it had made during the past half-century, then those who followed them would have good reason to congratulate themselves, and England would have good reason to congratulate herself, upon that progress. (Hear, hear.) He thought it would be admitted that not only had they, as members of the veterinary profession, profited by that progress, but that the public generally had benefited by the advance they claimed to have made. As they knew, they were but a young profession. He need not remind his fellow-members of that fact, but he was glad to see in that room strangers who were sufficiently interested in them to come and hear what they had to say for them-

selves, and sufficiently interested, he was sure, to bear with him for a moment or two while he told them that they were as a profession but about fifty-four years of age —for it was not until the year 1844 that they obtained, through the labours and influence of some few men in their profession, a Charter of Incorporation. That charter, he need hardly tell them, they valued immensely. (Hear, hear.) Later they obtained the Act for their protection, and that also was undoubtedly a step in the right direction, and they would ever feel grateful, not only to those who obtained for them their first charter, but also to those who obtained that Act of Parliament. Veterinary surgeons, who were indebted to her Majesty the Queen for raising them up to their present position by the grant of that Royal Charter, would have good reason and every justification for celebrating this year of her Majesty's Diamond Jubilee in a suitable manner. (Hear, hear.) It occurred to him that perhaps the only opportunity that would be afforded them as a profession of celebrating the Jubilee would be when the National Society met there at Reading: and he took occasion, therefore, to ask not only that every member of the Royal Counties' Association and every member of the National Association, but also as many members as possible of the profession generally, would take the opportunity of attending that gathering, if only for the opportunity it would afford them of expressing gratitude to their Queen for the position she undoubtedly had placed them in. On the occasion he referred to he trusted they might receive from the inhabitants and the governing body of Reading that reception which they had been afforded in many of the large cities—Edinburgh, Glasgow, Manchester, Birmingham, and many others. He felt sure, being a Berkshire man himself, that Reading would be as desirous of offering to the profession the hand of friendship and appreciation of efforts which its members had made during the short period of its existence. (Hear, hear.) Reference had been made by Mr. Harris to the fact, and he regretted that he must refer to it as a fact, though he did not go to the length Mr. Harris did—that the veterinary profession was still not appreciated as it should be. He could not say they must be thankful for the appreciation which they did receive. The appreciation of their services depended upon individual members of the profession: and if they bore that fact in mind, and each in his own sphere did his best to advance the profession in one way and another, they would have little cause to complain of want of appreciation by the public in general. (Hear, Hear.) He was sure that if the medical men present that night were introduced to some of the most eminent members of the veterinary profession, and took the trouble to peruse some of their works, they would extend to them the hand of friendship, and assist them in every possible way, as they had done in the past. They, as a profession,

gratefully acknowledged all that the medical profession had done for them in the past. Now that they had broken away from leading strings and were able to take care of themselves, they hoped to still retain that kind feeling which had always characterised the members of the medical profession, and had been always appreciated by the members of the veterinary profession. (Applause.)

Prof. McFadyean proposed the next toast, which was "Success to the Royal Counties Veterinary Medical Association." He said that in the very eloquent speech which Mr. James Simpson made in replying to the toast of the veterinary profession he was guilty of making what struck him (the Speaker) as an exceedingly cruel suggestion, viz., that he should not only propose the present toast, but that he should also have replied to the one it was Mr Simpson's duty to respond to; and he seemed to find some ground for that suggestion in the fact that he (Prof. McFadyean) was understood to have lately been at Birmingham "prophesying." (Laughter). Now, he was not going to deny that he could prophesy—(laughter)—indeed he might say that he had been particularly successful in predicting events that were going to happen at the end of the next century. (Great laughter). If, however, he might venture to pass an estimate on his own abilities he would certainly say that he was a bad hand at making an after-dinner speech. (More laughter.) To one statement that fell from a previous speaker he felt inclined to give a vociferous "hear, hear," for he, too, hated after-dinner speeches. If they would permit a Scotchman to perpetrate a "bull," he would say that the best speeches they had had that night had come from the gentlemen who had contributed the musical items of the programme. (Renewed laughter and "hear.") He should think that in a meeting almost exclusively composed of veterinary surgeons, many of them members of one or other of the local veterinary associations, it was hardly necessary to dilate upon the great benefits which those societies had conferred upon the profession at large. He thought it no exaggeration to say that they had played a most important part in the elevation of the profession and also in the education of the individual members of the profession. (Hear, hear.) He thought nobody would deny that, even with the four years' curriculum they now had, a student had still a great deal to learn when he left college. Now there were three principal sources by which the education of the newly-fledged member of the profession might be continued. In the first place, he could not help learning a great deal from the cases that came under his own immediate observation—in other words, he must learn a great deal from his individual experience. In the second place he must, or at least he ought to, learn a good deal from the information that was printed in their scientific journals; and the third

source of information was this—he might learn a great deal from conversation with his fellow practitioners, and that, he thought, was one of the main functions of those veterinary medical associations. (Hear, hear.) He (the Speaker) had himself, in order to keep abreast of the times, to read a good deal ; and he admitted that in that way he learned a good deal ; but he had often been struck, and he had no doubt it was the experience of nearly everybody, with the number of useful hints and ideas which he gathered, in very short time, in conversation with fellow-members of the profession. (Hear, hear.) He often had brought under his notice what he thought were illustrations of the advantage of being a member of such a Society as that. In virtue of his office, he was not infrequently called into the country and brought into contact in the way of consultation with members of the veterinary profession. If he met a man who was 50 years behind the times, whose pathology was that of Coleman or Spooner, then he knew that man was not a member of any local veterinary association. On the other hand, when he found a man thoroughly conversant with the most recent discoveries in veterinary science, and quite up to the modern methods of treatment, then he knew he would find that that man was a member of at least one such society ; and he was probably not wrong in concluding that the fact that he was "up to the times" was in large measure due to what he had learned by attending the meetings of the society or societies to which he belonged. (Hear, hear.) So much for veterinary medical associations in general ; but his toast was the Royal Counties Association in particular. He was ashamed to say that was the first time he had been at a meeting of the Royal Counties Association ; and he was inclined to think that perhaps it was partly by way of reproach for that fact that he had been asked to propose this toast. (Laughter and "no.") He promised that, if the thing were at all possible, it would not be long before he was among them again. (Applause.) He did not know in any detail the history of the Royal Counties Association. He believed it was neither the oldest nor the biggest society ; but he was quite certain there was no association that was doing more useful work in its own district, and he did know that it included among its members many names that were everywhere held in high repute in the veterinary profession. (Hear, hear.) He thought there was a particular reason why that evening they should drink a bumper toast to the Royal Counties Association. As the President mentioned in his interesting inaugural address that afternoon, this was a year in which the history of the Royal Counties Association would be marked by a quite unusual event, for the National Society was to hold its annual meeting in that district in 1897. He did not think that body could have chosen a place that would have been more likely to contribute to its success. (Hear, hear.) He

asked them to be filling their glasses while he mentioned that he was going to couple the toast with the name of Mr. Butters, an ex-president of that Association and an old friend of his. (Cheers). If one had to divide the members of the profession into the talking and the acting men, he was not sure into which class Mr Butters would fall, because, while he was a good, active and hard-working member of the profession, he was also a man able, when called upon, to contribute to the proceedings of any of their societies. (Loud applause).

The company drank the toast very heartily.

Mr. Butters hardly knew why he had the honour of replying to the toast so ably and so very kindly proposed by Prof. McFadyean. Certainly he had the honour of being President of the Royal Counties Association one year, but although connected with that presidentship there were certain little worries and troubles, the pleasure and the benefit which he personally derived counterbalanced those to a very great extent. As Prof. McFadyean had said, that Association was not one of the oldest in the country, but he thought there was no Association which carried on its work with greater fidelity, or who connected with it had members whose names were more respected all over England. (Hear, hear.) Those associations, as Prof. McFadyean had so clearly pointed out, were beneficial to their members and to the veterinary profession generally. He thought it was Lord Bacon who said that "reading makes a full man, writing makes an exact man, and conversation makes a ready man," and such associations fulfil all those requirements. A member could write an essay and read it, and at the meetings he could express his opinions, and give and take knowledge. (Hear, hear.) The success of the society, professional or otherwise, depended very much upon its individual members as well as upon its executive officers; but he thought at the same time that very much of success of that association was due to the choice of its officers, both as regarded permanent officials and those chosen from time to time to preside. Without taking the name of a prophet, he could say without hesitation that, great and assured as had been the success of that association already, its success in the future would be even greater than it had been in the past. (Applause.)

Mr. Wm. Hunting, in submitting the next toast—"The Medical Profession"—began by remarking that gratitude had been defined as "a lively sense of favours to come." Now the gratitute he wished to express to the members of the medical profession was not founded upon anything of that kind, because the gratitude they had hitherto felt to them had perhaps cooled a little lately—(laughter)—but still they were grateful, and nobody acknowledged more readily than he did what the veterinary profession owed to the medical. All the science of the first 50 years of their professional career was the science adopted from the medical profession.

Up to the time that the first veterinary College was founded in London, there was, doubtless, some empirical knowledge, but there was absolutely no veterinary science. (Hear, hear.) It was when they first obtained the assistance of the medical profession that they began to have some notion of "the why and the wherefore" of the treatment they had been in the habit of adopting, how to explain the various symptoms that they saw, and how honestly to recognise that they did not understand. In recent years, however, they themselves had endeavoured to become scientific men; and he thought he might say that they had, more or less, succeeded. Certainly they had contributed their quota to science lately, and they had assisted the medical profession in more than one direction. They had now arrived as a profession, he was glad to be able to think, at a point when they might, without conceit, say that they did not wish to be handicapped any longer, that they were quite willing to start fair in the race and to run equal, side by side with the medical, believing that the two professions were now advancing absolutely on parallel lines. (Hear, hear.) They had no wish to infringe upon the medical position; but, without wishing to be offensive, they did say that they were going to try and take particular notice that the medical profession did not infringe upon them. (Hear, hear.) So long as the connection was merely a matter of give-and-take in science, there was little cause for jealously on either side; but now that the subjects of public health and sanitary science had come forward they met on somewhat common ground, and there came in the matter of material interests. There were appointments to be had under the Central and under local governments, there was work to be done for the protection of public health in which both veterinary and medical men met, and in which they sometimes clashed. There were all the parasitic diseases, all the contagious diseases transmissible from man to animals and from animals to man; there were the diseases affecting the food which man derived from animals—milk and flesh. There they as veterinarians held that their opinion was at least as valuable as that of the medical man; and what they wished was to establish a working scheme by which the professions could assist each other without trespassing on each other's work. (Hear, hear.) They wished local authorities and the public generally to appreciate the fact that there was work for both professions, and that that work need not be conflicting; but if merely material interests were considered it would be conflicting. They wished to work with the older profession, and were always too glad to do so. They were as proud of their triumphs as they themselves were. Only the other day they reached the social acme of their career in the elevation of Sir Joseph Lister to the peerage. He held that that appointment indicated the high-water mark in the social progress of the medical profes-

sion. If they looked at his special work outside his medical career, they would see that that work had all through been very much mixed up with theirs, for he was essentially a sanitarian and a scientific man. (Hear, hear.) He was just thinking of what a difference there was between the present time and the days of George IV. Eminent men in medicine and surgery wished to have peerages conferred upon them in those days ; and it was said that George IV. was consulted as to some great medical man being made a peer; but the king had a very simple objection, which was that if he made the doctors Lords all the ladies would be running after them, and saying "Good Lord, deliver us!" (Great laughter.) There was another tie between the veterinary and medical professions. which was much more noticeable in the country than in the large towns, and that was their association in sport. They had a high opinion of the scientific medical man and they had also, he thought, a high opinion of the sporting doctor. (Hear, hear.) He did not know why, but he had a notion that all the best doctors in the country rode to hounds and enjoyed sport; and the majority of veterinary surgeons were also sporting men. (Hear, hear.) That was a bond between them, and in submitting that toast he had the pleasure of naming three medical men who, he was told, were all sportsmen and all scientific men ; and one of whom, moreover, Dr. Cox, was the son of a veterinary surgeon. Mr. Roberts and Dr. Wilcockson were both members of the Yeomanry. (Applause.)

The toast was heartily honoured.

Dr. Wilcockson replied in an effective and very humorous speech. Having thanked Mr. Hunting very much for the kind way in which he had proposed the toast, he said his acquaintance with the veterinary profession began very early in life, and while he was studying at Edinburgh he read the same chemistry and physiology with a distant relation who was studying for the veterinary profession, and they worked together a great deal after their second examination. They also had a great deal of fun together. (Laughter.) It was only lately that the connection between the two professions had come very much to the fore. It had been usual to hear people say that veterinary surgery was very interesting, but it was all "material"—that doctors in their noble profession had also the soul to consider, and that kind of thing. They left that, however, to the parsons. (Laughter and hear, hear.) They all knew the great intelligence of the horse and the dog. There was the great question of tuberculosis in which veterinarians had helped them very much, and could help them still more. Tubercle seemed to come frequently with the food taken, and especially the milk, and he thought they could work together a great deal on that question. They had helped each other in small-pox, the medical men depending on the veterinarians for lymph, which was a question

affecting the public very much. Then there was the great question of vivisection. The public were fearfully down on doctors on that question, and would do anything to stop them—even now touts were going from house to house for signatures, and simply telling the people that it was a petition against torturing animals. (Hear, hear.) They did not suspect veterinary surgeons at present. Veterinarians might help doctors very much by the experiments and observations on their patients and giving them the resulting knowledge. (Applause.)

Mr. Arthur Roberts also acknowledged the compliment. He wished to express his thanks to their President for inviting them, as he did not know when he had spent a more enjoyable evening. He was quite sure the two professions were very much more in unison than some of them were aware of. (Hear, hear.) After all they were both dealing with animals, and the two lines really went hand in hand ; and he thought the day was fast coming when the veterinary profession would take a very high standing indeed. Success in any profession depended not only on technical knowledge, but also on common-sense, for knowledge without common-sense was useless. What the veterinarians had done in their profession in the last 50 years was just what medical men had done during the same period in theirs. If they put a country doctor of twenty years ago by the side of a man of to-day it was like comparing a rush-light to the electric light. (Hear, hear.) He hoped the two professions would become more and more in harmony with each other, for there was a great work to be done between them in the treatment of the whole animal creation. (Applause.)

Mr. Hurndall gave the health of the "Visitors." Having proclaimed that he himself followed the method of treatment laid down by Hahnemann, and that his convictions in that regard were growing stronger every day of his life ; he went on to say that nothing gave them greater pleasure on these festive occasions than to see gentlemen present who were not members of their profession, because they helped to make those social reunions all the more pleasant, happy and refreshing. (Hear, hear.) Allusion had been made to the fact that not so many years gone by the veterinary profession was not looked upon in the most favourable light. They were not received by gentlemen into their houses on terms of equality and fellowship ; but now things had assumed an altogether different aspect. Education had advanced very rapidly in the veterinary profession, so that there was good cause for the recognition they now received at the hands of the public and the sister profession of medicine. (Hear, hear.) They were glad of the opportunity of showing courtesy to those who were outside the profession, in order that they might be impressed with the fact that if they saw fit to commit the care of their animals to their charge, they would not do so

without good reason and good hope that such confidence will not be abused. (Hear, hear.) As they were aware, that was a special occasion. His friend, Mr. Wheatley, was their host, and they were indebted to him for a specially pleasant and happy evening. That, however, made it the more difficult to propose "visitors," because they were all, in one sense in the same position. (Hear, hear.) That consideration of the subject led him on to remind them that Reading had been selected this year as the place where their leading society was going to hold its annual meeting. Members of the profession, at any rate, regarded that meeting as an important and notable occurrence ; and indeed, they felt that they were, as was the case with the British Medical Association, conferring somewhat of an honour upon the town selected. As they had been reminded, the National Society had met in many towns of importance, and had been received by the corporate bodies in a manner highly flattering to the profession, and they had confidence that Reading would not be behind hand. (Hear, hear.)

Counciller Bull, who returned thanks, said he could claim as a sportsman a very great love of animals, and therefore he looked on the profession with a great deal of sympathy. He felt sure the Mayor and Corporation would be pleased to give the National Society a very hearty welcome in August. He was pleased they were coming at such a pleasant time of the year, when they would find the town, with its beautiful river, very attractive ; and he was sure they would find Reading a hospitable and "up-to-date" town. (Applause.)

Professor Macqueen gave the last toast "The President and Officers of the R.C.V.M.A." As to Mr. Wheatley (Cheers) whom they had to thank for that banquet, he was a man of action, a man who was distinguished in the profession—a good friend, a good fellow, and a good practitioner.—(Cheers.) He was very glad he was their President this year, and hoped he would distinguish himself as he did when he held the same office some seven years ago. They could not have a better Treasurer than Mr. Walker, and he believed the success of the Association was largely due to the interest he took in its welfare. (Hear, hear.) Whatever Mr. Hurndall's views might be on pathological treatment and veterinary politics, he always gave his opinions honestly and straightforwardly, and like a man. They might cavil at his reasoning, but no one doubted his integrity and the straightforwardness of his utterance ; and as their Secretary he did the Association great credit. (Applause.) Taking the three gentlemen together, as the chief officer of that Association, he was especially well pleased, as Secretary of the National Society, to think that the conduct of the next meeting would be in such hands, with the assistance, of course, of the President Mr. J. F. Simpson. (Applause.) Never had the Royal Counties' Association been in possession of such excellent officers,

and even if only for emulation sake those who had to follow in their footsteps would do well to pay attention to the energy, activity and interest which he knew would be displayed by those gentlemen during the year 1897. (Cheers.)

The toast was drunk with musical honours.

The PRESIDENT could only say that he thanked them sincerely and heartily for supporting him in such numbers, He should be very pleased to further the interests of the Society in every way in his power ; and he assured them no effort on his part should be wanting to make this year a memorable one. (Applause.) He could have no greater incentive than the kindly support he had received that day. (Applause.)

Mr. HURNDALL also returned thanks.

Between the speeches Dr. Wilcockson and Messrs. Hurndall, Bonny, King, S. Harris, P. H. Kettley, Owen, and Ben Lawes gave songs, and Mr. H. A. Lampe banjo solos, in splendid style.

EASTERN COUNTIES VETERINARY MEDICAL SOCIETY.

The Annual Meeting was held on February 23rd, at The Royal Hotel, Norwich. It was attended by members from all parts of the district, and special interest attached to the proceedings by the spontaneous and fitting recognition of the long and valued services of the Hon. Sec., Mr. W. Shipley, Junr., F.R.C.V.S., of Yarmouth. The members having lunched together, the President, Mr W. Shipley, Sen., (Yarmouth), took the chair for the conduct of the afternoon's business. Among those present were :—Messrs. W. Bower, J. Pollock, E. Leach, W. Hunting, F. W. Wragg, T. E. Auger, G. C. Hunting, F. M. Wallis, S. Smith, J. Thurston, E. Margarson, F. B. O. Taylor, J. D. Overed, J. Barr, W. R. Mills, and R. Taylor. The visitors being Messrs. Cordy, Rutherford, C. Mackie, and Dr. Webster.

STATEMENT OF ACCOUNTS.

The statement presented by the HON. SEC. was as follows :—Receipts, balance brought forward, £57 4s. 4d.; 58 member's subscriptions, £30 9s.; entrance fees, £2 12s. 6d.; arrears of 1895 subscriptions, £1 1s.; subscriptions received for the entertainment of the National Veterinary Association, £130 5s.; subscriptions in arrear, £1 11s. 6d. ; making a total of £221 11s. 10d. On the expenditure side the items were : expenses of Ipswich Meeting, £2 7s. 6d.; Norwich Meeting, £2 7s.; Yarmouth Meeting, £3 6s. 4d.; subscription to the Agricultural Benevolent Society, £2 2s.; subscription to the Jubilee Fund, £5 5s.: subscription to the Walley Memorial,

£2 2s.; moiety of expenses for Mr. Simpson's election ; £ .; grant for the entertainment of the National Veterinary Association £30 ; expenses of the entertainment, £130 5s.; printing, stationery, cheques, and postages, £4 14s. 5d.; making with balance at bank of £34 10s. 6d., a total of £221 11s. 10d.

Mr. T. E. Auger moved the adoption of these accounts. Mr. F. W. Wragg, in seconding, said they were extremely satisfactory, their finances being in a very healthy condition. The resolution was agreed to *nem. con.*

Deaths of Vice-Presidents.

The President said that since they last met their Society had sustained a very sad loss by the death of two of its Vice-Presidents, Mr. A. E. Shorten, of Ipswich, and Mr. Fred. Case, of Swaffham. As recently as last year Mr. Case was occupying their presidential chair, and they had felt his loss exceedingly. He knew it would be their wish that letters of condolence should be sent to the families of both these gentlemen. They had been taken away in the prime of life, which was very sad, but it was the common lot, and they must take it as it came, without repining or vain regrets, and they must work on just the same, doing the best they could in their day and generation.

Mr. W. Bower said it was their unanimous wish that such letters of condolence should be written to the families of their late friends. They were both well known to him, and particularly Mr. Case. They all knew what a good fellow he was, and so also was Mr. Shorten. He moved that letters of condolence be sent.

Mr. E. Margarson seconded, and this was also agreed to.

The New President.

The President said he had much pleasure in proposing the name of a gentleman to occupy the chair which he would vacate that day. He was well able to worthily fill it, and he hoped he would accept it. The gentleman he had the honour to nominate was Mr. Richard Howard, of Thetford, whom he invited to become their President for the ensuing year. (Applause.)

Mr. F. W. Wragg seconded.

The Hon. Sec. in supporting the nomination said Mr. Wragg had done well to second the resolution as he thereby gained a respite for twelve months. The resolution was then put to the meeting and enthusiastically adopted.

The President Elect, who rose amid applause, said he felt very much the honour and kindness they had bestowed upon him in calling him to their Presidential chair. He felt proud of the position, and it would give him great pleasure to take it. He hoped they would support him and attend their meetings as numerously as on that occasion.

Election of Officers.

The election of the Society's officers for the ensuing year then proceeded briskly. The Vice-Presidents chosen were Mr. W. Shipley, Senr., (Yarmouth), Mr. T. E. Auger, (Wymondham), and Mr. E. Leech, (Newmarket.) The Committee was formed of Messrs. F. Low, J. D. Overed, J. Pollock, and S. Smith, with power to add to their number. The Auditors, Messrs. P. Turner and F. M. Wallis, were re-elected.

In proposing the reappointment of the Hon. Sec., Mr. W. Bower said they must ask Mr. W. Shipley, Junr., to again take the office because they could not get on without him, and he had done such splendid work for the Society, in which they all knew he took such great delight. In fact, said Mr. Bower, he would be sorry to give it up.

Mr. F. M. Wallis seconded. He said it was impossible to find a better Secretary. The resolution was carried by acclamation.

The Hon. Sec. in acknowledging an enthusiastic unanimous vote, said he would be very glad if they could get some one else to do the work and draw his salary. (Laughter.) He would promise to serve as Secretary for another year to his friend the new President Mr. Howard.

Presentation to the Hon. Sec.

One of the most interesting incidents of the afternoon then followed. Mr. J. D. Overed said he had been requested to perform a very pleasing duty, one which would commend itself to all of them. Members of the E.C.V.M.S. knew full well the troubles, trials, and vicissitudes through which it had passed from its youth up. He was one of the first of a very small nucleus of members that formed the Society in 1868. In the interval that had elapsed they had weathered all the storms and were now in a very excellent position, both numerically and financially ; not indeed that they should be entirely satisfied, for he hoped they would continue to enlarge their borders and increase their numbers. He and they, however, must have observed that a good deal of the prosperity which they enjoyed, and upon which they congratulated themselves, was due chiefly to the exertions of their friend, Mr. William Shipley, Junr., (applause) their valuable Hon. Sec. He could assure them that the position of Secretary to an association of that kind was no sinecure ; he knew that from having held such a position in a kindred association. He had had the privilege of "earning something" in connection with the Society a good many years ago when he held the position of Hon. Sec. But the Society of that time would not compare at all with the present position. They were very much indebted to Mr. Shipley for the success to which they had attained, (hear, hear), and he was extremely pleased they had re-elected him. (Applause.) They owed him a deep

debt of gratitude, and he deserved something more than thanks at their hands. This idea had occurred to several other members of the Society beside himself, and they all desired to express in some tangible form their gratitude to him as an officer of their Society, and their regard for him as a member of the veterinary profession and as a private individual. By the kindness of a number of friends he was able in their name to ask Mr. Shipley's acceptance of a complete service of silver, and he hoped he would live long to enjoy the use of it for many years. (Applause.) He trusted that it might also give pleasure to Mrs. Shipley, and that both might know and feel that they had the best wishes of the Association for their success and prosperity. (Applause.) The table silver, he said, was a choice set of sterling silver, specially hand made of the best quality that could be procured, and they had to thank Mr. Wragg for procuring it for them in London. The service was cased in velvet and oak, the lid of the case bearing the inscription on a silver plate, "Presented to William Shipley, Junr., Fellow of the Royal College of Veterinary Surgeons, in grateful recognition of his valuable services as Hon. Sec. of the Eastern Counties Veterinary Medical Society. February 23rd, 1897." Mr. Overed said their gift was only in "grateful recognition" not as a reward for Mr. Shipley's services. That was their wish and in that spirit he hoped the gift would be accepted. (Cheers.) He then formally handed the gift amid much applause to the Hon. Sec. on behalf of the Society.

The Hon. Sec., speaking in acknowledgment, said he hardly knew how to thank them for presenting him with such an extremely kind gift. He could not see that it was deserved, or where the necessity for it came in. Everything he had done for the Society had been to please himself, and what testimonial he might require he thought, he was pleased to say, he saw in the growth and extension of the Society. It was his hobby, and the only thing he had worked for outside of his professional duties, but he considered it was to the interests of the profession that they should knock about together and make their Societies a success. He thanked them very much indeed, and also for the kind way in which they had always supported him by attending the meeting and making them so successful. He also desired to express the thanks of his wife who, he was sure, would be delighted. He could only say how grateful he was, and to repeat that he had not deserved such a magnificent present. (Applause.)

Unpaid Subscriptions.

The Hon. Sec. reported that three members were in arrears with their subscriptions, and his letters to them having been ignored he desired the Society to decide what course should be taken.

The President said that the bye-laws gave a majority

of the members power to deal with such cases as they deemed expedient.

On the proposition of Mr. J. D. Overed, seconded by Mr. J. Pollock, it was resolved that a final letter be sent to each of the three members informing them that unless the subscriptions in arrears were paid their names would be erased from the list of members.

Donation to Agricultural Benevolent Instn.

Mr. W. Bower moved that the annual subscription of two guineas to the Agricultural Benevolent Institution be renewed. Many of them were earning the chief part of their living out of agriculturists, and he did not think they could do less than support this excellent institution.

The President seconded, and this was agreed to.

Motor Car Act.

The Hon. Sec. read a communication received from the Roads Safety Association which, in the interests of the public and of horse traffic on the highways, had taken action in regard to the Motor Car Act of 1896, securing the passing of several amendments in the interests of the horse users. This had led to the expenditure of a considerable amount towards which subscriptions were invited.

Mr. F. W. Wragg: Reply that they have our *moral* support—(laughter)—but as we had no voice in the action we cannot accept responsibilities now.

It was decided to take no action in the matter.

Mallein in Glanders.

The Hon. Sec. read the circular letter from the West of Scotland V.M.A. dated November, 1896.

Mr. W. Hunting said the question had been before the Central V.M.A. To carry out the suggestion that compensation should be paid out of Imperial funds would require an Act of Parliament. At present the Glanders Order was carried out by the Local Authorities who supplied the funds. Asking for an Act of Parliament to charge the Imperial funds with the compensation for animals slaughtered for glanders was rather a large order. What would be far more practical was for them to express as veterinary surgeons their approval of the action of mallein. He had used it very largely, and he would sooner trust the reaction of mallein than his own senses, for it would diagnose a case with certainty where he could not. He had the greatest trust in it as an aid to diagnosis, and he thought they could not do better as a Society than express approval of mallein and suggest that the Board of Agriculture might recommend its use. Mallein was only something to help a man to arrive at a diagnosis. He did not suppose mallein would ever be ordered to be used by Act of Parliament. It was a thing to be used by an inspector who would draw his infer-

ence from the symptoms of reaction and be guided by it. The best thing they could do was to say they approved of mallein and believed it to be a good reliable re-agent and hoped the authorities would favour its use.

The Hon. Sec. said he would propose "That the Eastern Counties V.M.S. approve of the use of mallein as an assistance in the diagnosis of glanders." He was not in a part of the country where they suffered much from glanders, but in one or two suspicious cases that he had he used mallein with most satisfactory results, and he should not hesitate to use it at any time if he suspected glanders, and form his diagnosis from the results obtained.

Mr. F. W. Wragg seconded this resolution. He had used mallein very much himself, and he fully shared the opinions of Mr. Hunting and the Hon. Sec. He was quite sure that they had no agent which enabled them to diagnose glanders in the way that mallein did. The resolution was carried unanimously.

On the motion of Mr. Wragg, seconded by Mr. Bower, it was resolved to leave the question of support to Council candidates to the Committee and officers of the Society, with full power to act.

The President-Elect proposed that the next meeting be held in June at Yarmouth

Mr. T. E. Auger seconded, and there being no other proposal this was carried unanimously.

INJURIES TO AND DISEASES OF THE FOOT OF THE HORSE.

By W. J. T. Bower, M.R.C.V.S.

Mr. President and Gentlemen,—It is with much pleasure, but at the same time with diffidence, that I appear before you to fill a gap in the literary requirements of our Association. Our mutual friend and worthy Secretary, having his own way according to his wont, told me I was to read a paper, and that he would "not take no for an answer." In this condition of affairs I had no alternative than to place my humble services at his and your disposal.

In considering how I could most agreeably and profitably engage your attention it occurred to me that a few observations on some cases of disease and lameness in the feet might be the means of laying the foundation of a useful discussion, in which one and all may take part, and by bringing together the fruits of our daily experience, contribute to a more rational practice in this important branch of our profession. In medicine and surgery, as in all other branches of science, the great lever to progress will be found in a full and free interchange of ideas and observations prompted and recorded in the course of our daily work.

It has been said, and wisely so, that "a horse might

as well have no head as no foot," and nothing could be more true of this dumb friend who ministers so freely to sport and pleasure, to trade and commerce, and in the past has done so much for the great cause of civilization. No matter in what capacity this noble animal serves his master, his feet must be in a healthy condition to allow him to perform his duties in a satisfactory manner to his owner and with comfort to himself. Therefore, gentlemen, however trivial the disease or disorder may be, prompt and deliberate attention should always be given to any ailment affecting the foot of our equine patient.

The foot of the horse is subject to a greater number and variety of accidents and ailments than that of any other animal, and before entering into the consideration of its diseases it may be desirable, if not necessary, to briefly consider some of the chief points in its anatomical arrangement. No organ has been more misunderstood and abused than the foot of the horse. In recent years, however, its structure and function have received a large amount of painstaking attention, with the result that the old destructive practices based on the exaggerated views of expansion and sole descent have well nigh passed away.

Anatomically considered, the foot may be primarily divided into three parts : 1st, a central ossific base invested by (2nd) a cutaneous membrane, and these together are enclosed in (3rd) a horny covering " the hoof." The bones comprise the third and part of the second phalanx (to the first of which are appended the lateral cartilages) and the navicular bone. The cutaneous or nutritive membrane consists of a highly vascular and sensitive prolongation of the skin, spread over the bones, and variously disposed in different parts of its surface. Around the coronet it forms the coronary cushion, from which emerge numerous villous offshoots or papillæ, by which the crust is formed and reproduced. On the front and sides of the foot it is gathered into folds or laminæ which afford a large uniting surface to the crust, while below it forms the plantar cushion and the sensitive sole with their pappilated surfaces, part from which the horny sole and frog are formed and renewed. The hoof is a protective covering, and it is difficult to conceive anything more beautifully constituted for the purpose, combining as it does, hardness with elasticity, toughness with strength, and last but not the least, it is a bad conductor of heat. Possessing at it does these properties in a high degree it lends itself with admirable facility to the adaptation of the indispensible shoe. Notwithstanding, however, the fitness of the hoof for the natural requirements of the horse, both it, and the foot as a whole, have suffered in no small degree by the evil influences of domestication, and it is to such like ailments that I propose to ask your attention.

Among the diseases and accidents affecting the feet, some implicate the bones, others the sensitive structures

of the organ, some belong to the hoof, and not a few involve the whole. Even in colthood the horse is liable to meet with certain kinds of accidents, for example, treads from others, punctured sole or frog, splitting of the hoof from below, tearing the hoof from the sensitive structure above, as not unfrequently occurs to colts by fixing the foot in iron hurdles, and between the head of a gate and its post and such like places. Some of the accidents most commonly met with in the horse while in service are over-reach, treads, bruises to the sole and pricks with nails. Then there are corns, quittor, sand-crack, false quarter, seedy-toe, thrush, canker, navicular disease, laminitis etc. All diseases of the most serious character and requiring for their successful treatment the application of sound principles of pathology with the wisdom of experience.

Over-reach.—This is an accident very commonly met with in the country, and consists most commonly in a portion of the crust of the fore heel being torn away from the sensitive parts beneath, by the inner edge of the toe of the hind shoe, it is common to all horses but more especially met with in hunters and steeplechase horses. In these animals the injury occurs in the act of leaping, or when the fore limbs are momentarily fixed in deep ground and unable to clear themselves of the advancing hind feet. The result of such an accident may be of a trifling character, and consist merely of a superficial abrasion, or it may cut deep down into the tissues of the heel and be attended with serious contusion to the parts beneath and around.

With regard to treatment in these cases I daresay we shall not be unanimous, as doctors differ, thank goodness. In an ordinary case of over-reach I generally, after having well cleansed the part, take the raised portion of horn quite away, get the heel as dry as I possibly can, dress with plenty of iodoform pulv., bandage it up with a good pledget of cotton wool, and leave it for a few days when, as a rule, the bandage being removed the animal is fit to resume work. Occasionally an accident of a more serious kind occurs which is not so easily treated as talked about. I call to mind a valuable hunter in my practice a few seasons since who, whilst hunting, we suppose struck himself in the way we suggest. He not only removed the superior portion of the inner heel but tore about three inches of the hoof from the top nearly to the bottom. This was clapped back by the owner, tied with a handkerchief, and the horse removed home. When the handkerchief was removed I confess I did not think the horse looked at all like hunting again. The heel was fairly pulled down, the portion of hoof that was hanging to it I could easily have wrenched off. The parts were fomented, however, with warm water which was slightly carbolized, I then removed a great portion of the heel and lateral cartilage, which was split, placed the portion of hoof again on the laminæ, smothered the

wound with iodoform pulv., covered it with cotton wool packing, and all the boracic acid I could get it to hold, a piece of linen bandage was then tightly wrapped a few times round, and the lot enclosed in a plaster-of-Paris bandage. I did not undo it for a fortnight when to my great pleasure the heel and hoof presented a highly satisfactory appearance. I did it up in much the same way for another ten days, then put the sand-crack clamps into the hoof and fixing it with the sound part, the hoof remaining in position while the new horn grew from the top, the horse hunting again the same season

Treads and punctured wounds etc.—The same remark holds good as to very carefully examining the parts when first starting treatment. I remember when I was a student, over 30 years since, in commencing to describe our treatment for different ailments, we always used to say "first remove the patient to a comfortable well ventilated loose-box and attend to the general comfort of the animal." I am sure that rule holds good to the present day, as it is a great assistance in the treatment of a diseased foot to have the patient in a thoroughly clean and comfortable stable. I feel certain that many of you, like myself, have been surprised to find how completely some cases of puncture to various parts of the foot have recovered, when you have much dreaded their not doing so, and have been equally vexed and annoyed at others, to which at first you attached but little importance, never dreaming any evil would arise therefrom, but which have terminated in uselessness or perchance death of the suffering animal. Undoubtedly our aim in all these cases is, or should be, to relieve the suffering patient as far as practicable.

I imagine the treatment adopted by most of us is, in certain particulars, similar in these every day cases. We no doubt agree as to the desirability of relieving the tension of the part by removing pressure, softening the horn, and obtaining as far as we can a free depending orifice. This is mostly accomplished by knife and poultice. Unfortunately, in many of these cases the veterinary surgeon is not called in at first. The offending agent, be it nail, stone, bone, wood, bit of glass, or whatever else beside, is removed ; the horse goes on alright for a few days, then suddenly becomes very lame, then the doctor is sent for. By this time suppuration has been established, and sinuses formed beneath the sole, under the frog, or perhaps under the wall, according as the injury is in one part or the other.

It is in these cases where the practitioner who, guided by experience, uses the paring knife freely is most successful. Always being careful not to wastefully cut away any part which in a few days time he may wish he had left. Once you have your sinus opened the more simple the treatment, if suitable to the case the better—my treatment generally consists in a day or two's poulticing,

a little digestive ointment followed by iodoform and dry packing. It is needless for me to say that in all these cases it is of the first importance that the general condition of the patient be attended to, as in many instances where constitutional disturbance is present the success of the case will greatly depend on our restoring the system to a healthy state. No rule can be laid down for this treatment, one must be guided by the symptoms and circumstances of the case.

Corns are the result of accident, being caused by pressure, and must be treated like the ordinary bruise of the sole.

Quittor is decidedly the sequel of injury to the sensitive parts of the foot, sometimes inflicted above and sometimes below; it is termed a fistulous sore at the coronet. This condition usually results from a tread on the coronet, or it may arise from injury beneath the sole such as pricks, close nailing, &c. Quittor, as all of us know, is at times very difficult to treat successfully, owing principally, in my opinion, to the impossibility of putting the foot to rest, and the often inaccessible position of the sinuses. Hence the long duration of the disease and the liability to necrosis of the lateral cartilages, etc. The great trouble in Quittor is the tendency of the pus resulting from inflammatory action to burrow and form sinuses, which in neglected cases ramify in all directions.

Regarding the treatment of this disease, I think there is great diversity of opinion, I don't mean with the end aimed at, but as to the best method of obtaining that end. I have no specific, although I must declare my greater reliance and fondness for surgery over medicine. I am never afraid to make a large opening where Nature is trying to make, or perhaps has made, a small one. When this is done I like to explore the wound freely with the probe, and, I suppose in common with others, get an opening from below if possible, whether it be half way down the wall or through the sole. I generally cut out from the coronet a big wedge shaped piece, embracing both band and hoof, and always do it with a hot sharp iron. I do not use strong injections, and never induce sloughing with corrosive sublimate. I use a solution of chloride of zinc, carbolic acid, also iodoform, but generally I do not put much faith in dressings. I do not, however, condemn them, or any man's treatment, as I believe in each one relying on the bridge that carries him safely over. To treat of Quittor exhaustively, gentlemen, a paper on it alone should be produced, and I trust ere long one of our young friends may do us that honour, when he will tell us all about the "Staphylococci," and other related organisms.

Sandcrack is, I think, the next subject named in my list, and may be defined as a rent in the hoof. It varies in its position in different feet. Behind it is most frequently seen in front of the crust, while in the fore

foot it occurs chiefly in the inner quarter. It is possible for Sandcrack to occur in some horses from brittleness of the horn, without any previous injury. We see it occasionally in unworked colts. In saying this I do not mean a split in the margin of the hoof from below upwards, but a typical Sandcrack, commencing at the coronet, which would appear to be due to some disordered secretion of the crust. It may also arise out of certain forms of injury to the coronet. I am quite of opinion that unduly rasping the hoof, particularly of some horses, renders it prone to Sandcrack. Sandcrack may or may not cause lameness ; if sufficiently deep to injure or expose the sensitive laminæ it does.

Treatment of Sandcrack has vastly changed since I was a boy. I remember when horses were brought in lame from this cause the fissure used to be made wider, the injured foot was put into a poultice till all soreness disappeared, then the top well marked with the iron, the coronet was blistered, and the horse turned away and forgotten. If the horse can be spared I am not certain that the old treatment does not compare favourably with the new, and has the merit besides of being more humane. The course I now adopt in fresh cases is to remove existing soreness by poulticing, hot water applications, etc., after which the edges of the fissure are drawn together as close as possible with the sandcrack clamp, the coronet seared just above the crack, until I think I have in part destroyed the tissue, then the part is severely blistered. As a rule I find this treatment successful. For a time the lameness is somewhat aggravated by the operation, but it soon subsides, and the horse is generally able to work while the horn is growing.

False Quarter is denoted by a groove in the crust extending from the coronet downwards, the horn at this part is insufficiently produced, as the result of injury to the coronary band.

I have no treatment to offer you by which this defect can be overcome. Try what I may failure is the uniform result of my efforts to cure a good old False Quarter. I try my best to keep the horse in a workable condition by attending to the hoof, and directing the nailing and adjustment of the shoe.

Seedy Toe is not a serious but sometimes a troublesome ailment; it consists in a separation of the superficial from the deep layer of the crust, as a result of which the affected part of the wall becomes hollow and contains more or less of disintegrated horn. This is caused perhaps by an unhealthy secretion of the lower part of the laminæ. Of course it is at times the sequel of laminitis. I sometimes think this condition should not be termed "Seedy Toe" as it may be, and often is, at the side of the foot. I believe the disease out of which it arises always commences below, and I have known it to extend high up towards the coronet. If found out in the early stage it may often be arrested in its progress. It is one of the

points about which special care is required in the examination of horses as to soundness, for although hundreds of horses are working sound to-day with Seedy Toe, it is very annoying to be written to by a client for whom one has recently examined a pair of horses saying, "My coachman informes me the brown horse has a nasty Seedy Toe, and the farrier says it must have been in existence some time."

In this disease the treatment adopted is pretty uniform throughout the profession. It consists in removing the outer detached layer of horn, and by a repetition of blisters promoting the downward growth of the crust, a run in a damp meadow is a useful adjunct to treatment.

Thrush. This malady is considered by some to arise entirely from bad stable management. With this, however, I do not entirely agree, as occasionally I have found Thrush in the feet of horses where daily washing was religiously carried out, and where the frogs were left as much as possible in their natural condition. Thrush, it is agreed, will arise from wet and dirt getting into the cleft of the frog and exciting irritation in the sensitive structures of the foot. Horses kept in boxes for long periods with their shoes on, and feet not picked out, and otherwise neglected are frequently the subjects of Thrush. When it occurs in the horse at work the chief cause results from the horny frog having been pared away so much that the organ is unable to perform its proper functions. We frequently see horses with narrow upright and contracted heels the subjects of this malady, their frogs having been lifted from the ground and deprived of their normal action. In these circumstances the frog wastes, becomes contracted, hard, and dry, and splits in the fissure, thus exposing the sensitive parts. When, however, it is allowed to take its bearing on the ground and perform the purposes for which it was intended Thrush is of seldom occurrence.

We all of us know the symptoms of Thrush. I do not think that I can better describe them than by saying: Thrush shows itself by a strong smelling unhealthy secretion discharged from the cleft of the frog. The presence or absence of lameness will depend upon the extent of the irritation existing in the sensitive structures from which the discharge issues.

The treatment of thrush must depend upon the cause. If it arises from dirt, either in one form or another, remove the cause and the effect will cease. If from unnatural growth of foot, or interference with the natural duties of the frog by the farrier, means should be resorted to to bring the frog back to its natural work again, by lowering the heels, and in the meantime the discharge must be arrested by styptic dressings applied on fine tow.

Of Canker and Laminitis I think I must say but little as we have all of us heard excellent papers on them. Either subject is well worthy the efforts of our ablest

essayists to do it justice. Nothing short of a treatise on either can be satisfactory to a body of gentlemen such as I see before me. Among other causes canker is very likely to follow a case of chronic neglected thrush. We are well aware that in the latter disease the sensitive frog becomes involved and a thick, unhealthy, and offensive discharge escapes from the cleft, and for some reason or other hypertrophy of the papillæ is induced, and the condition we term canker becomes established. We are told by Möller that the causes of canker are little understood, that the subject requires further investigation, and I quite believe such to be the case. I am of the same opinion with regard to its treatment. I am sorry that on this point I do not agree with the author just quoted, as he says the greater number of cases recover; under my treatment it is the reverse.

In the treatment of this disease my first object is to thoroughly expose the diseased surface, which I find more easy to talk about than do, the next thing I do is to try and find what astringent or combination of astringents, or caustics and disinfectants suit best, as I do not find the same to meet the requirements of all cases, then, once this is accomplished, the best method of applying the same, and keeping pressure on the parts, and keeping those parts dry has to be determined upon. The next most important thing according to my idea is the daily dressing, whether that be done once or twice a day, and which should be done by a practical man—I mean a veterinary surgeon, as I never find a groom, yardman, or man of any kind in trust who does it carefully enough. I am strongly of opinion that this is the reason we do not more often succeed in our treatment. We cannot, I fear, afford to give the time required, and the employer cannot afford to pay us for the time a professional man should spend about a case of this kind. I have written and made a handsome offer to those who profess to cure canker to take a case under their charge. This offer has always been declined. I do not think this would have been the case had it been an easy task to accomplish.

Of Laminitis one, of course, could write for a week, and after all we would be recapitulating what all of us have heard before again and again, so many having written at various times upon it. As in the last disease, so with this, we are at times fairly beaten. Plenty of cases of fever in the feet get well, perfectly so, but others keep getting worse from the hour one is first called in, and the patient dies, without your having been able to relieve the pain and distress a little bit. The cases that are most trying to the veterinary surgeon and vexatious and costly to the owner are those which get well enough to live on, but fail to reach the point of usefulness. If we could only find measures to prevent that dropping of the sole what a boon it would be to veterinary surgeons, and what a saving to horse owners. The valuable stallions

and brood mares that suffer and are rendered valueless from this affection is surprising, and many thousands of pounds are lost annually in consequence. Where we get no change of structure from the effects of an acute attack the patient gets well, but be the structural derangement ever so slight I look upon the animal as rendered subject to recurrence of the disease.

We are told by Mr. Dollar in his translation of Möller that the cause of dropping of the sole is pressure of the body weight and the pull of the flexor pedis perforans tendon on the os pedis ; the bone is thrust down and the pull of the flexor tendons, which are rendered tense from the weight on them, tends to rotate the os pedis around its transverse axis, so the toe sinks and the wings rise. Such was pointed out by Siedamgrotzky. This description seems to me to be in accord with the general views of the profession, and, if correct, we can never hope to prevent descent of sole, etc., until we can devise means to keep the patient in such a position from the commencement of the attack that the body weight and stretch of tendon can be avoided. If our patients could be kept laid and legs strapped up to prevent extension, this perhaps might be accomplished. This position we know cannot be maintained, therefore I am afraid we must struggle on in the hope that means may some day be devised for the prevention of this dreaded dropped sole. Whether shoes should be on or off during the treatment of laminitis is a matter of opinion, something concerning which we shall no doubt hear during discussion to follow.

To wind up this somewhat lengthy paper I must say a word or two on that all important question, navicular disease. The seat of commencement of this disease is not agreed upon even amongst our best men, some believing it to be the tendon, others bursal, and some on the surface, or in the structure of the bone itself. I do not think it is matter of much importance for our purpose where it originates, my own opinion is there is no reason why it should always have the same primary cause, or seat of commencement. We mostly find in cases examined after death both bone and tendon are affected, this probably being due to long abiding disease. The navicular bone acting as a trochlea or pulley for the passage of the tendon under it, in its course towards the coffin bone must, as soon as it becomes the least eroded, cause much pain during movement. Indeed we have every proof of it from the manner in which horses suffering from this affection crouch with cat-like movement at first starting. My object in naming this disease amongst others for discussion is to glean, if possible, from one or the other of those taking part in it, their general observations and experience.

The best method for keeping an animal suffering from navicular disease going, with most comfort to itself, is pretty well known. Many horses are working daily

(and in London more—nightly) although suffering from it in an advanced stage. It would only be wasting time for me to attempt to give any fresh ideas as to the pathology of navicular disease, or explain the many so-called cures. What I would like to know, gentlemen, is how to get most work out of the horse with as little pain to the animal as possible. At the commencement of an attack I am in duty bound, for the satisfaction of my employer and the benefit of my day book, to try the usual remedies. Hot or cold poultices, blisters, frog setons, etc. any and all of which in the end have, of course, to be given up. If the owner wished it, neurotomy may follow. This is an operation I never perform, except at the express wish of an employer who is determined to work the horse as long as he can. Knowingly I do not operate upon a horse to get him well enough in his gait to be sent to a sale. I think we, as veterinary surgeons, should not do so any more than we should extract incisor teeth from colts in order to make them appear older. I find the patients of which we are now speaking, those suffering from navicular disease, seem to work best where their feet, after the journey, are placed in hot poultices for at least twelve and in some cases twenty-four hours, and gradually cooled down in a cold bath or swabs. In hacks, foot-pads whilst travelling are a decided advantage.

I have now to thank you, gentlemen, for your kind forbearance in listening to a paper which I told you at the outset contains merely a few disjointed remarks intended to provoke discussion for our mutual benefit.

Discussion.

Mr. W. Hunting, in opening the discussion, said that what struck him most in Mr. Bower's paper was not so much the tremendous amount of ground he had covered as the concise and judicious manner in which he covered it. He had never before heard a man put a day's work into half-an-hour so nicely. While he just hit the points of interest to practical men he also touched upon anatomy, physiology, and pathology, but condensed in such a way that the subject was approached from a practical point of view. For overreach he noticed Mr. Bower cut off the flap, and then adopted the antiseptic treatment, and none of them could do more. He noticed Mr. Bower retained faith in the old practice of poulticing. Why in the world did men poultice a horse's foot so much more than any other part of his body that was injured? Somehow or other, practitioners got into the habit as soon as there was anything wrong with a horse's foot to poultice it. If it was its head, would they do so? He knew of no earthly reason why a horse's foot should be poulticed to the extent it was. He was absolutely certain that in a great many instances half the mischief resulted from the terribly long poulticing to which the foot was subjected. As to

Corns, they were all in the habit of cutting them out immediately they suspected them. Sometimes they pared and came down after one or two strokes of the knife to a discoloured piece of horn. What should they do then? He thought they ought first to ask themselves the question—how far has this bruise gone; is there any pus here; or is it absolutely certain matter will be formed? If it was not certain he should go no further. If there was matter in the foot of course they should let it out. He quite agreed that there were some cases in which if they did not cut through the horn they were horribly disappointed. Sometimes they had a horse with a big blocky foot that was lame, and they suspected a corn, but a blacksmith with a strong pair of pincers could make no impression on it. Afterwards they found there was a corn by its breaking out on top, and then they wished to goodness they had cut it out. Sometimes they had a case where there was merely a little serum exudation between the horn and the sensitive tissues which it was far better to let alone than to cut into. If there was a little hole they made it a big one, and by paring they left only a thin edge of wall quite incapable of supporting the weight. A narrow ledge of wall left like that could not stand pressure, and was often a cause of the continuance of lameness. As to quittor, Mr. Bower said he always liked to have an opening below. He (Mr. Hunting) was a little doubtful about that. When quittor was once established he could not see any need for the opening below at all. Half the quittors proceed from injury by nails and the other half from treads. The sinus of a quittor had no connection with the original passage which the matter made in passing upwards. If the horse were injured by a nail the matter passed between the horn and the laminæ and worked out at the coronet. The passage closed and an abscess formed, which escaped by a new and deeper sinus which formed a quittor, but had no direct communication except as a matter of cause and effect with the place where the matter first appeared. The persistent fistula was due to some foreign body. It was either diseased bone, cartilage, or fibrous tissue. The difficult thing was to get it out, but there was a psychological moment when they could treat quittor successfully, and when they could not. (Laughter.) When the cause was loose that was the time to treat it; it would probably heal itself if they did not interfere. He did not believe there was any need to resort to the radical remedy the French suggested. They could cure without the extirpation of cartilage, by corrosive sublimate injections, and sometimes by cutting down upon it. He did not think they did a great deal of harm even if they cut through the coronary band. It did not seem to destroy the band or prevent its adhesion. He was a distinct believer in the old farriers' empirical treatment of the hot iron. He still used it, and he had little fear of

success where he got the iron down to the bottom of the quittor. He took pains to get it there because he did not believe in dodging about with a hot iron on a horse that was on its legs. It should be cast, and the iron got down to the very bottom of the quittor. The modus operandi seemed to be that they destroyed the portion of ulceration going on in the cartilage, and at the same time they destroyed the passage and made a wider opening for the escape of any matter coming from it to the coronet. Sandcrack, Mr. Bower said, was generally due to some injury to the coronet. He believed it always was. He considered there was a defective condition of the coronet before they had sandcrack. Mr. Bower advocated poulticing. His own opinion was that if they had sandcrack in the first stage with blood running from it, they should treat it antiseptically, which was the proper thing in every case. He did not object to slight poulticing, but he thought antiseptic fomentations better. As to after treatment he agreed with Mr. Bower in the use either of a nail or French clips to hold it together, but he liked to prevent the inward motion, and therefore he put in between the edges of the crack, which he widened for the purpose, either a small block of wood or a mixture of gum ammoniacum and gutta-percha. When they had prevented it moving either way they could leave it alone and wait until it grew up. Seedy toe was supposed to arise from the bottom of the foot and spread upward, but he was very strongly of opinion that like sandcrack it proceeded from the coronet. Although a distinct separation of the horn might not be visible at the coronet there was some disorganising process of the horn taking place before they got the separation which they recognised as seedy toe. In some cases he had distinctly seen seedy toe follow injury to the coronet. He could not understand why separation should occur from below, separating upward, unless the horn was diseased previously. He did not think a horse was ever lame from thrush. Sometimes a horse was lame through a stone at the time he had thrush, or in other cases he was lame from another cause when he had thrush. (Laughter.) Canker he knew very little about, and of lamininitis he also saw very little in London. As to the descent of the pedal bone he could not see why Möller's theory was wanted. There was five times as great a surface of laminæ at the toe as at the heel, and remembering the development of the disease, with inflammation between the horny and sensitive laminæ, then the greatest amount of exudation would naturally take place at the lower part of the toe, and where there was the greatest amount of exudation would be the greatest amount of pressure. The pressure would be upon the lower part of the front of the pedal bone, and that was exactly the pressure that would produce depression of the pedal bone, and cause the point of the bone to appear through the sole as they found it. In all cases of

chronic or convalescent laminitis they had not only prominence of the lower part of the toe, but an absolute falling back of the wall at the coronet. The exudation, taking place on the coronet would affect it more or less, separating it from the wall, whilst the weight of the horse was of course a principal factor in the descent of the bone. This would account for all the conditions they found. He did not see any room for the theory that the flexor tendon was more largely active than the extensor tendon, for both tendons were balanced. He did not see why the flexor tendon, which rotated the bones, should act any more than the other, and when a horse put its weight on the heel there was still less reason for the flexor tendon being credited with special violence. He always made a point of having the shoes off and lowering the wall with the idea of getting as much weight on the sole which relieved the pressure on the laminæ. As to navicular disease, Mr. Bower raised the very important point whether it started in the bone or the tendons. He was perfectly certain that the changes they saw in the navicular bone were not at all in proportion to the amount of lameness shown by the animal. They might have a case where the lameness was intense, but on making the post-mortem they might find hardly anything wrong with the navicular bone. They had other cases where the lameness was very slight and the disease lasted for a year or two, but they would find the navicular bone simply honeycombed. Then they found inflammatory changes going on at the bursa, and he believed there were many cases in which the morbid changes were taking place only in the vascular circulation that they recognised as navicular disease, but which were treatable and curable. Over and over again he had seen horses presenting all the symptoms of navicular disease—grogginess in going, improving after they have been going five or ten minutes, standing in the stable pointing first one foot and then the other—get worse the longer they rested. He had seen them shod with tips and sent to work every day. The first week of course there was a liability of a prosecution for cruelty, but the horse would get better and better and ultimately become absolutely sound. He remembered one case in which he advised an owner to shoe a horse with tips and try him a little longer. He was driven from London to the South and West coast and back, doing from 30 miles a day every day in a dog cart, and returned absolutely sound. He was inclined to think the majority of these cases arose from circulatory disturbances and not from ulceration of the bone. It was nearly always the same history, a horse rested for a month or two that had hitherto gone sound becomes lame as soon as he returns to work. The practical point was this—that in all these cases of so-called navicular disease where the animal was not so intensely lame that it could not be moved, to shoe it with tips, get its heels well on the ground, and keep it

at work every day of the week, Sundays included. If it rested for one day in the seven it would be as bad as before, and therefore keep them at work. If that would not do unnerve them. He was not in the habit of waiting till the owner told him to unnerve them. Where he had a good horse lame that he could make sound by unnerving he advised it. He would tell an owner who had a horse with action or manners that were invaluable that he could, bar accident, ensure him eighteen months longer use of him. The owner might say he had a friend who had a horse unnerved and its foot came off. He replied your horse possesses rare qualities which are not easily bought, but from this incurable lameness is perfectly useless, surely the proper and humane thing is to unnerve him and retain his services.

Mr. F. W. Wragg, after speaking appreciatively of Mr. Bower's paper, said that with respect to his treatment by iodoform, while they were all agreed that antiseptic surgery was the proper treatment of the day, iodoform was too expensive a material to use in his practice, and he obtained the same results by using a solution of corrosive sublimate. As to paring away the wall of the foot and dividing the coronary band, he had many scores of times cut into the band and taken a great piece out, but it soon healed up without any false quarter. He had seen a bad result from cutting away the wall, and that was in a cart horse with extensive laminitis, on which canker supervened. If they got canker in the wall it was a very difficult matter to get rid of it. He had a case now that came to his place daily. It was a suppurating corn, and his assistant removed a large piece of the wall, canker supervened, and though he had got it to grow to the bottom of the foot there was still a small spot of canker of which he could not get rid. As to corns, Mr. Hunting said he just cut down to that part of the hoof where he saw a red blush come through. For his own part he invariably cut it out. He did not leave that part of the wall in as his friend did, but cut it away, his reason being that he had seen many cases where pus formed afterwards, and then they got quittor, and quittor from a suppurating corn was one of the worst cases they could have. Mr. Hunting had spoken against poulticing, but a lame horse might be brought to them which their assistants would say had a slight corn. When the pincers were used it would not flinch and he might think it was lame from some other cause. Thereupon he would order it to be poulticed, and very often the horse would recover from its lameness. He was inclined to think, though the horse does not flinch, that a corn pressing on the heel was the cause of the lameness. At any rate he got well, and if they were wrong in their diagnosis that was the happy effect they all wanted. As to quittors, now and again they got a horse badly pricked, and it came out at the top of the coronet. He

did not think so badly of these cases, because they could very often get a free opening and keep injecting, and then they did not always turn to bad quittors. While he appreciated the hot iron for quittor he liked the knife. He used to cut away for quittors very much indeed for many years, until he became possessed of some quittor lotion which he had since used, and he now had very seldom to cut away the parts. His lotion was composed of diacetate of copper, sulphate of zinc and acetic acid. This must be injected by someone they could rely upon. When the horse got used to this and gave trouble by becoming spiteful then he never feared how much he cut away. Mr. Bower spoke of firing above the crack in sandcrack, on the skin of the coronet. He had heard of that and tried it, but he liked South's system. He had each side cut away so as to be able to put in a wedge shaped piece of wood. He had also tried the French plan of clamps and a nail, but these pressed the horn too much on the sensitive parts. South's system was to lift the horn away from the sensitive parts, and this avoided the motion of the hoof which caused such excruciating pain and lameness. He had seen horses die from this excruciating pain in the hind foot. He invariably cut this part of the hoof away. He did poultice, and it had been his practice for years, and while he saw good results from it he should continue poulticing. He would not say he would rather see the devil come into his yard than a case of canker (laughter) but that was his feeling. He had tried all sorts of treatment for canker, including creosote, which he at first thought would be a remedy, as the case went on very nicely, and to all appearance was nearly well, but 2 or 3 days later it broke ont just as bad again. In London they had not the facilities for trreating canker that there were in the country, where they could put a horse with canker to work on the land which did a great deal of good through, it might be, the disinfecting properties of newly ploughed land, which was quite as much good as their dressing, and of course eased the pressure. As to laminitis, there was Professor Smith's operation of cutting loose a piece in the front of the wall of the hoof, which he had done many years before Professor Smith brought it before the profession. He was delighted with the first two cases, they went on so well ; but after that he had several cases which did just as badly. Of course Professor Smith's answer was that he had not performed the operation soon enough, but when they had a case not of intense inflammation but only congestion of the laminæ, and the animal in acute pain, he had very little faith in cutting that piece of wall away. He had also very little faith in exercising a horse with laminitis. He tried that, but he got a worse descent of the sole than when he rested the animal. He invariably took the shoes off, keeping them off for a few days and applying poultices. It was impossible to get a man to foment a horse for three or four hours,

but they could get a poultice on and a pail of hot water would renew it. That must do some good. He did not poultice for quittor, though he knew a man who did from the time he was called in until the animals got better or otherwise. If in a few days the animal was still in great pain he put on very narrow wedge shoes and let him go on his frog, and generally applied a blister to the coronet. As to navicular disease Mr. Bower said something about daybook treatment. In all diseases he would commend them to daybook treatment. (Laughter.) Some people said they ought to be scientific men first, but he considered they ought not to neglect the daybook. (Hear, hear.) He did not agree at all with neurotomy; he never performed the operation. He did not believe it did much good and it very often opened the door to fraud. (Applause.) They got a tremendous lot of punctured wounds through picking up nails in London. He was now treating a very valuable horse that got a nail into its frog and there was discharge of synovia. He had a similar one from the same firm previously which had to be killed, and he feared this one must also be slaughtered. The trouble in London was from the French nails, (made in Birmingham) which dropped out of the packing cases opened by tradesmen in the streets.

The Hon. Sec. said Mr. Hunting did not advise poulticing in cases where the hoof was opened, and Mr. Wragg had said he had lost horses from the severe pain of sandcracks in the hind foot. He had himself used hot poultices many times on a horse's foot, not so much with the idea of curing the injury itself as to relieve the pain, and that was one of the objects of poulticing. As to corns, he had known plenty of cases where he examined horses' hoofs for bruises and on cutting these away nothing more was seen of the corns at all. As to quittors, his opinion was that the opening below was far the better plan. He had been very dissatisfied with the hot iron. The sinus in the hoof was often very small, scarcely admitting an ordinary-sized probe. Then he made it his business to open the horn, pass a probe down, and then with a small bistoury cut down to the bottom. By taking an iron they could slough away the sinus. The result must be more satisfactory surgically than putting a hot iron into a small sinus. Tips he believed to be the best treatment for so-called navicular disease, and he had had some magnificent results. He put tips on and got the frog and heels well on to the ground. He had an idea that some so-called cases of navicular disease were not navicnlar disease at all. Especially was this the case with horses having large round flat feet. He had made sections and found a bony deposit under the sensitive laminæ of the foot, but hardly laminitis, because the injury was under the sensitive laminæ, between the sensitive laminæ and the bone itself. This produced a good deal of lameness and made them apt to

think it a case of navicular disease. So far as the treatment for picked up nails, he recommended Mr. Wragg to read the paper read at their autumn meeting by Mr. Overed on open foot joints.

Mr. J. D. Overed said he had had several cases of open coffin joint from puncture of the bottom of the foot and found them very troublesome to treat. He was treating one case by several methods for a long time without success, when one of his friends recommended alum and he used it with perfect success. Alum was a very cheap article and they were therefore apt to overlook it. As their friend Mr. Wragg had said, when they could find a satisfactory remedy in a cheap article they were justified in using it.

Dr. Webster said that in the medical profession they laid great stress on getting a free dependent opening in similar cases to quittor. They found that they could not be healed without. As to the navicular bone they found that tendo-synovitis, inflammation of the sheath of the tendons, bothered them a good deal, and they were also troubled with bursa. As to navicular bone troubles, it struck him that bursa might account for several of these cases. Chloride in solution was better than perchloride, but for a dry dressing hardly anything could take the place of iodoform. Its antiseptic properties were something marvellous. Its action was continuous, and the results wonderful. He had used Koch's lymph, and though not successful as a treatment it was a great diagnostic of all forms of tuberculosis. There was always a reaction, and such a high temperature that one had to be very careful in using it. It did not cure, because as Billroth found, it only entangled the germs, the tuberculous bacilli in some fibrous material. He supposed they had nothing corresponding to rheumatic gout, but medical men were finding that rheumatism and rheumatic gout wonderfully modified all sorts of diseases.

Mr. J. Pollock said he frequently met cases of what he might designate coronitis, a peculiar growth round the coronet, the hair stunted, stubby and standing out, and strong roughened horn growing out of the coronet. He found this very difficult to get rid of. There seemed to be no definite cause, and the horse had no laminitis. The horse suffered from itchiness of the limbs and rubbing together of the feet. He must differ from Mr. Hunting as to the origin of seedy toe. He said that the horn grew entirely from the coronary band, but by removing the horn they found deeper layers of horn reproduced from the sensitive laminæ. He thought seedy toe sprang from defect in the soft texture of horn which lay upon the laminæ, and not that which grew from the coronary band. It was probably due to the want of vitality in this deeper layer of horn springing from the sensitive laminæ. He had never been able to trace it as arising directly from the coronary band, and from nails, or from an animal

having a predisposition to trip at the toe which caused separation. As to the treatment he agreed with Mr. Hunting and the essayist. He had had considerable practice with corns and he never stopped till he had cut them out. Those who used the knife freely never had cause to regret it. To their young friends who were apt to desist when it appeared that the animal was suffering great pain he would say "whenever there is a corn don't stop till you get to the bottom." As to the treatment of corns he had not heard anyone suggest the three-quarter shoe. This, by the absence of pressure, would help to bring about a cure. He differed somewhat from Mr. Hunting as to poulticing. In many cases of foot lameness the horn was so hard and dry that it was almost impossible to cut it with the sharpest knife. By using a poultice for a little time the horn became more yielding and the hoof elastic, and in that way they derived considerable benefit from poulticing. He also poulticed where they had an opening of the wall. As to the treatment mentioned by Mr. Wragg, of opening the horn at the toe, it was years since he had done that in a case of laminitis, but where they had laminitis in a very acute form he should strongly recommend fissure in front, leaving the sole full strength, and they could get slight pressure by making the animal walk on soft ground or on some soft material in a loose box. Cold poulticing with open fissure would get some of the exudate away. Sloughing was due to the amount of inflammatory exudate thrown out, and if they stopped this they prevented separation between the sensitive and non-sensitive structures.

Mr. W. Bower, replying on the discussion, said he had used guttapercha or a wood wedge, and also the clamp, so as not to bring the edges of the fissure in sand-crack close up. With regard to seedy toe and Mr. Hunting's criticism, he adhered to his opinion that the rise is from the bottom more than above the coronet. He cut from the bottom as far as he could and he did not think he would be justified in cutting up. In laminitis the descent of the bone he thought was from the large amount of inflammation set up in the laminæ, and the body weight had a great deal to do with it. He quite agreed in the use of three-quarter shoe for corns, and he had also used tips. As to coronitis he should say the only treatment was by blistering repeatedly.

A hearty vote of thanks was then accorded to Mr. Bower for his paper, on the motion of the President seconded by the President-elect.

The Retiring President and the "National" Meeting.

Mr. J. Pollock, in proposing a vote of thanks to the retiring President, warmly eulogised his services, especially in connection with the recent "National" meeting, when they were very arduous. He was present

at every meeting of the Committee and rendered invaluable assistance. Words failed him to express the hearty and kindly way in which Mr. Shipley and his son helped them on that occasion. He moved that they thank them both.

Mr. J. D. Overed, in seconding, said that in his previous remarks with reference to Mr. Shipley, jun., he purposely avoided making any reference to his great and equally valuable services in connection with the National meeting, for the simply reason that when the testimonial was proposed subscribers were limited to the members of the local Veterinary Medical Associations. Mr. Pollock had, however, reminded them of the additional debt of gratitude they owed to Mr. Shipley and his son. The services they rendered on the occasion of the visit of the National Association gave the highest degree of satisfaction to all concerned, for he had had communications from gentlemen in various parts of the country who with one accord praised their President and Hon. Sec.

Mr. W. Bower, in supporting the resolution, said that placed in the position he had the honour to occupy, no one could better judge the great services rendered by Mr. Shipley and his son. They deserved their warmest thanks.

Mr. F. W. Wragg said that, as an officer of the National Association, he desired to join in this tribute of praise. He would like to offer the President and their Hon. Sec. the hearty thanks of the National Association for the manner in which they conducted its last meeting. He had been to every meeting of the National Association since it had been formed, but they had never had so successful a meeting as at Yarmouth last year.

The vote was carried by acclamation, and the President, in acknowledgment, said he might have had a little responsibility but his son had done most of the work. He thanked them for their kind words which he highly appreciated, and also for their kind support, without which the whole thing must have been like a wet blanket round one. They had, however, been well supported and were grateful for it.

The Hon. Sec. contented himself with "I thank you very much."

The meeting then ended and the annual dinner followed, the President occupying the chair.

THE CENTRAL VETERINARY MEDICAL ASSOCIATION.

An Ordinary General Meeting was held on Thursday night, March 4th, 1897, at the Royal College of Veterinary Surgeons, Red Lion Square, Bloomsbury, Vet.-Col. Kettle, the President, occupying the chair. The other fellows present were :—Messrs. Nicholson Almond, A. L. Butters, J. K. Bruce, J. Baxter, J. Broad, H. W. Caton, Hugh A. MacCormack, F. W. Dowell, J. Harris, J. Sutcliffe Hurndall, Vet.-Capt. A. J. Haslam, A.V.D., R. C. Irving, Vet.-Lieut J. Moore, A.V.D., Prof. McFadyean, Prof. Macqueen, J. H. Manton, F. C. Mahon, (Hon. Sec.), A. W. King, W. J. Mulvey, H. G. Rogers, A. Rogerson, F. W. Wragg, W. E. Taylor, Hugh Singleton, J. Rowe, (Hon. Treas.), and W. Reekie, with Prof. Cossar-Ewart, (Edinburgh), and six other visitors.

On the motion of Mr. H. A. McCormack, seconded by Prof. J. McFadyean, the minutes of the preceding meeting having been printed were taken as read and were confirmed.

The Hon. Sec. (Mr. F. C. Mahon), announced the receipt of communications from Mr. H. Withers, Mr. J. R. Cox, and Mr. S. H. Slocock, expressive of regret at their inability to attend. Telegrams were subsequently received and read from Mr. W. Hunting and Mr. S. Villar, apologising for non-attendances.

Nominations and Election.

The Secretary intimated that the following gentlemen had been nominated for election at the next meeting :—Mr. J. H. Shepherd, M.R.C.V.S., of Barnet, Herts ; and Mr. Harris, M.R.C.V.S., of Elm Villa, Hanwell.

A ballot resulted in the unanimous election of the undermentioned gentlemen as fellows of the Society :—Vet.-Lieut. J. Moore, F.R.C.V.S., A.V.D., Woolwich ; and Mr. L. Savournin, M.R.C.V.S., Long Lane, Smithfield, E.C.

A Sterilisable Veterinary Hypodermic Syringe.

By Vet.Capt. J. Haslam, F.R.C.V.S., M.D., A.V.D.

After laying aside their hypodermic syringe for a time, many practitioners have come to their instrument case to find their syringe is out of order, and that it cannot be coaxed to work properly! It leaks, owing to a flaw in the needle, or to the lacquer between mount and glass barrel having melted, or the leather piston is "perished." Others have ceased to use a hypodermic in disgust, because they find the needles constantly bending or breaking, or the syringe is dirty, full of mould and uncleanable.

To remedy these defects and to obtain a syringe that would stand high pressure, and which could be used about the legs of a fidgety animal I set about, two years

ago to get an improved syringe. The result is the evolution of the specimen in my hand, and what I would like to term the 'extinct forms' I have also here to night. I invite your inspection to all, in the hope that the 'struggle' for the ideal, as illustrated by these links, may help you to improve on my own endeavours to meet a real want in our practice. While admitting it is not theoretically a very perfect syrings, I fear my own unaided intellectual capacity will suggest no more ideas. I have tried to produce a purely veterinary syringe, meant for thick skins and for rough usage. Whether I have succeeded I leave to your criticism as practical men, and perhaps in some cases to your future experience.

The needle of my syringe is not a cylinder, like the usual needle, but a slightly tapering cone, having its wall thicker at the base, and the canal the same width throughout. It is made, I am told, of about a dozen metals, collectively termed Arnold's metal, by Arnold and Sons. In consequence of its shape, resistance to strain is increased *pari passu* with depth of insertion into tissues. The metal is such that it bends rather than snaps. I have pushed these needles into cartilages, exostoses, young and old, tendons, and the thickest equine skins, and even when there has been sudden movement of the limb, the needles have not given way. Of course, if a sharp pointed needle is used often on thick skins, as in the leg, or pushed into exostoses, or if let fall, one must expect the point to turn occasionally. but a fine file will easily put this right. The ordinary bayonet-pointed needle is the best I know of for penetration, but if the tissue to be operated on is at all dense great difficulty is experienced in injecting the fluid. The plating of a needle will also vanish if you use it often enough, as most of our medical fluids have some action on the metals. You will observe also the shortness of this needle as compared with the older forms. The stoutness of the needle may cause some apprehensions, but it need not do so for equine or bovine skins. If it does alarm anyone, they could order the usual type of needle from the makers, just as one might have such a needle fixed on to one of the existing syringes. I have used it some hundreds of times and never had an abscess follow its use, except when pushed into a suppurating gland, as in strangles. Most of my injections have been done with biniodide of mercury, which is itself an antiseptic, but even with ordinary fluids such as morphia solutions and used without antiseptic precautions to the skin, I have had no abscesses after use. I draw air through and through, wipe dry, detach from syringe, and place the wire inside. The needle is "ground" on to nozzle, which you see is particularly long. This method of fastening of needle is ever so much more satisfactory than by a screw. The shape of this needle, and the slope of the handles, are the only parts of the syringe I can claim as original, the

the rest is a combination in one syringe of the good points of existing syringes.

The glass barrel is a simple cylindrical tube, extra thick, and of less size than the ordinary syringe, points which you at once admit. There is no marking on the glass, no screw thread and no lacquer, as in these other syringes. Thus if broken it is cheaply replaced, and any one can replace it himself. Fluid is prevented from escaping by means of a thin asbestos washer inside the metal mounts. The metal mounts screw on and off the metal protector or sheath, on which are the graduations of measurements, and thus the glass barrel is forced against the washers; surplus washers being supplied with each syringe. The plunger consists of a central rod, plated, with a flange at one end, and a hardened screw-thread at the other end on which is a nut and a sloped ring handle. There is also a tube with flange fitting over the rod. A thick fibrous asbestos washer (with spare ones in the syringe case) fits on the central rod between the flanges. This idea of plunger was obtained from the anti-toxine syringe. When worn out, you can easily replace the asbestos plunger yourself—this cannot be done with the present syringes in veterinary use. This asbestos preparation is thread like. It rapidly becomes moist and soft in presence of fluid and expands slightly. It dries and becomes moist indefinitely. It can be boiled, or even put in a spirit flame. It is evident that the thick asbestos piston when moist is easily given lateral expansion by turning the nut, and thus you have as tightly a fitting plunger as you like. If you ever come to inject fluid into forming exostoses you require a very tight fitting piston, and this syringe has stood that test. A good way to test a syringe that occurred to me is to try to inject fluid into a piece of cork as I do now. It tests needle, leakage, piston, and almost everything else. When done with, to release the strain on the screw thread, glass, and piston, you turn back the nut and piston is released and can lie in your surgery for months, only to get dry, and be again ready for use on damping and screwing up the nut.

The top mount has two finger rings specially sloped to enable the syringe being worked with one hand. This idea was got from the ordinary quittor syringe, and the slope added. You can boil the whole apparatus, and so sterilise everything at once, and prevent mould from forming, or you may clean in a lysol solution which does not act on metals, unlike so many antiseptics, and wipe dry. Of course if not wiped, one must expect a metal syringe to lose its plating and become worthless. Had there been lacquer or glue, many fluids would dissolve them, and boiling could not be allowed without risk of leakage. It is also evident to you how simply the syringe comes to pieces and is put together, and easily cleaned.

The syringe being sterlisable can be used for mallein

and anti-toxin injections and for experimental work. That if broken any part can be easily and cheaply repaired. I submit it as a strong and durable instrument, and in conclusion I do not think I exceed the bounds of etiquette by saying that I believe it to be excellently made by Arnold and Sons at a cost of 25s.—and although the dearest on the market I believe it is the cheapest !!! I am indebted to Arnold and Sons for some suggestions from other syringes and for the loan of some of these specimens here to-night. I may also add I have no interest whatever in the sale of the instrument, but I am proud to be able to tell you that the head of my service has ordered its adoption for the Army Veterinary Department in the future.

Discussion.

Professor McFadyean, rising at the request of the chairman, said: Since the chairman has called upon me I gladly rise to make a few observations on the very neat and handy instrument which Captain Haslam has submitted to our notice. I confess that I had not previously thought that there was such a great necessity for effecting improvements on some of the existing syringes, but I think in criticising any particular syringe it is necessary to remember that hypodermic syringes are applied for different purposes, and that qualities which make an instrument very good, and perhaps superior to any others for a particular purpose, may for other objects be rather weaknesses in that syringe. Now I have no experience of the use of hypodermic syringes for injecting liquids into such dense structures as bones, but I think I may claim considerable experience in the use of hypodermic syringes for injecting liquids into subcutaneous connective tissue, and I am sorry to have to say that I think I know a syringe which is much superior to the one Captain Haslam has just brought under our notice, that is superior for ordinary purposes to which the hypodermic syringe is put. In the first place cost is a material consideration, and the particular syringe which we employ for hypodermic injections at the Royal Veterinary College costs eleven shillings. It is a syringe of nearly the same capacity as Captain Haslam's. It is also in a very neat case, and it has two strong handles. Lest anyone should suppose that I have an interest in the sale of this particular instrument, I refrain from mentioning the name of the maker. (Laughter.) Indeed he is not known to me, as he lives in Germany. I am sorry to have to think that this German syringe is better than any of the English make that I have seen at the same money. And since I have said that this particular instrument is superior to the one that Capt. Haslam has brought here, let me state what I consider the advantages of the one over the other. Captain Haslam has claimed as a particular merit of his syringe that it admits of being boiled without injury to any portion of it,

as it has no lacquer joining the metal and the glass. It has, however, asbestos washers. Well, of course, I cannot speak from experience, but I should think that even an asbestos washer is liable after long use to leak a little, especially if it is allowed frequently to be alternately dry and moistened. That is my experience of the asbestos piston at any rate. In a syringe in frequent use that, I admit, does not often happen, but the syringe to which I referred a minute ago, and which in Germany passes by the name of Löeffler's syringe, in that it was first made at the suggestion of Professor Löeffler, is in respect of its capability of being boiled without injury better than Captain Haslam's, because it also has no lacquer cementing glass and metal work, nor has it any washers. It is simply of the substance of glass and metal. At the lower end it has a stout glass nozzle which fits into the syringe and, after very extended opportunities of testing, I confess I do not feel that there is any necessity to effect any alteration in Löeffler's syringe. Then with reference to the needle, I also think that a conical is not as good as a cylindrical needle. The great difficulty in introducing a needle is, of course, to get a sufficient canal made in the skin, and according to my experience, the moment you get a hypodermic needle through the skin behind the insertion point the rest is easy, because you have made a hole which is as large as any part of the needle. On the other hand with a conical needle all the time you are making a larger hole. The great thing in regard to a hypodermic needle is to have it sharp, and I do not like a big needle. With reference to the insertion of a needle through the skin of the body or neck of a horse, I admit what I have said does not apply to the insertion of the hypodermic needle through the skin of the legs. Capt. Haslam said he had never seen an abscess following the introduction of this particular needle except when he had previously introduced the needle into pus, or something like that. Well, I hardly suppose that Captain Haslam means that it is a particular merit of his needle that without any precautions the insertion will not be followed by suppuration. That is not a quality of the needle, it is rather a quality of the man who uses it. I ascribe the non-appearance of abscesses not to the particular syringe or needle but to Captain Haslam. In referring to this point I might remark that though I do not like to say anything to minimise the necessity of attention to sterilising. I do think that the danger of abscesses following the use of the hypodermic syringe has been greatly exaggerated. Abscesses that form at the seat of a hypodermic injection are very rarely due to the injection of pathogenetic or suppurative organisms of a syringe. They are usually due to the injection of organisms in a fluid that is not germ free. That that is not mere theorising I think I can lead you to believe by an illustration. I know a gentleman who is a member of this Society but is unfortunately not present this evening

who, to my knowledge, has tested 1,100 horses with mallein without in a single instance an abscess or anything untoward following at the seat of injection, and the syringe he uses is not one sterilised by boiling. He takes no precautions except to keep his syringe clean and use, I think, a little dilute carbolic solution. No doubt if one has facilities there is nothing equal to boiling in a saucepan or other vessel for sterilising a syringe, and this is the only method of sterilising employed at the Royal Veterinary College. There is kept in my laboratory a saucepan which is sometimes used three or four times a day, but when a hypodermic syringe is used for any purpose, then it is not used again until it has been boiled.

Mr. H. Singleton said a great deal might be said in favour of Captain Haslam's syringe which doubtless deserved to be called sterilisable, but that term could hardly be applied to the case which held the syringe. The case is very neat, and as a specimen of the upholsterer's art it was certainly unique. Why instrument makers consider it necessary for a syringe of this description to be encased in satin is incomprehensible. For our purpose what we require is a plain simple metal case. He had not had an opportunity of using Capt. Haslam's syringe but had employed a syringe which had an asbestos piston which he had never used without first submitting it to boiling. He had had one in use many months, and after he had used it and boiled it and put it aside he found it was quite serviceable when he required it again. In fact he found the asbestos piston of his syringe, after repeated use, had not suffered in the least, and was now as good as when he first got it. Captain Haslam's syringe was readily taken to pieces and could thus be submitted to the boiling process all the more easily. That he deemed a great advantage in a hypodermic syringe. It had often occurred to him that they might have with advantage an arrangement towards the point of the needle in the shape of a collar or stop, which would prevent the needle from penetrating too deep into the tissue. There was the danger of damage if the needle entered too far into the tissue. Perhaps some would object to this device because it would hinder the needle reaching the bottom of a test tube or bottle and withdrawing the whole contents, but the guard might be screwed off. His opinion was that the rings were a decided advantage. When he used a syringe he did not, as Capt. Haslam described, first insert the needle into the tissue and then fix the syringe in position. He first had the whole thing in position and then inserted the needle, and the presence of the rings enabled the operator to perform the operation the more easily with one hand. He thought they were indebted to Captain Haslam for introducing this syringe which was certainly most ingenious and praiseworthy.

Mr. Hurndall remarked that the two preceding

speakers had rather taken the tone of criticism in their references to Captain Haslam's syringe. Perhaps he would not be out of order if he spoke rather more in favour of the syringe so far as it appeared commendable from his point of view. He was somewhat surprised to hear Professor McFadyean raise an objection to the syringe on the ground of its price. A fortnight or three weeks ago the Professor was kind enough to supply him with some tuberculin for a gentleman in America, but he did not at the same time advise him as to the syringe he should get for his American client, and the one he procured from Messrs. Arnold cost 30s. So that, compared with this syringe, Captain Haslam's had an advantage in price. There were three points in Captain Haslam's syringe which commended themselves to his judgment. In the first place the needle was capable of penetrating the densest tissues without bending, secondly the plunger claimed to have a resisting power so that no fluid could get behind it, and thirdly the syringe could be used as no ordinary syringe could be—with one hand. Those were three very important points of which the two previous speakers had taken no notice. He was quite aware that in a meeting of that sort where it was customary to discuss matters from every standpoint there was a decided tendency on the part of most of the speakers to take an adverse view of whatever was submitted. Personally, he was rather inclined to take a favourable view. He thought they were indebted to Captain Haslam for bringing this matter under their notice, and when next he required a syringe for an American client he should prefer one of Capt. Haslam's costing 25s. to one like that he recently got for which 30s. was charged.

Captain Haslam, in reply, said that when he commenced to obtain a syringe which would suit his purpose he had many difficulties to contend with. The reason for his beginning at all was that he desired to secure some method of producing so called counter-irritation without marking the skin of the horse. He soon found, however, when he began to apply that to the legs of the horses the syringes he used all came to pieces. The barrels broke through not being thick enough, the needles bent, flaws appeared, the pistons got out of order. Above all the needle went wrong. So he examined all existing hypodermic syringes with a view of devising needed improvements. He agreed with Professor McFadyean that when once they got over the initial resistance the needle went in well enough but when the needle had penetrated the leg of a horse there was generally a movement, and the needles were bent in that movement. First he attempted to push a needle into the tendons to get a reaction, afterwards he found a hypodermic injection was sufficient. However, in the legs of the animals there was involuntary movement of which he had spoken, and because of this and the

extra thickness of the skin of the legs of horses the conical shaped needle was employed. It was true that the asbestos plunger would in time become worn, but, as he had pointed out in his paper, two extra plungers were supplied with the syringe which could be utilised. The plunger which he exhibited had been in use for eighteen months and employed upon at least a hundred animals, and, as they saw, it was still capable of being used. It softened when wet and extended laterally. They could always get a water-tight action for what was required. It was true there was no mysterious charm about his needle to destroy the microbes of pus. Perhaps the reason why he had been free from causing abscesses by its use was that the majority of his injections had been made with an antiseptic, and because he kept his syringe clean. He did not leave his syringe to rust as he had seen many syringes left. The case which held the instrument had not attracted his attention, but he thought it was a good suggestion to have a case that could be rendered aseptic. He only claimed the needle as a sterilisable one and he did not include the case in that remark.

The Chairman then, in the name of the Society, cordially thanked Captain Haslam for his paper and interesting explanations of his instrument.

SUPPURATIVE LYMPHANGITIS.

By Vet.-Lieut. J. Moore, F.R.C.VS.

I must apologise to my profession for my slowness in bringing to notice a disease I met with during my tour of service in India. This disease was termed by me "Suppurative Lymphangitis," and entered in all army returns of sick and lame as such. It occurred at Calcutta and the military station of Barrackpore, sixteen miles distant. From its analogy to the disease known as "farcy" of glanders and farcy, it is extremely important that it should be known to the veterinary profession, the clinical manifestations of the two diseases being somewhat similar. Till quite recently I was unaware that it had been described by anyone, certainly by no English veterinarian. I was, however, informed that it had been noticed by French veterinarians in Algiers, and on my return from foreign service I meant to have possessed myself of their writings on the subject. Thanks to Mr. Dollar, the material has come easily to hand in his translation in the *Veterinarian* of Professor Nocard's paper on "An Ulcerating Lymphangitis simulating Glanders-Farcy in the Horse." I have carefully noted the disease, studied it clinically, obtained the microbe, experimented by inoculations, and last, but not least, have cured it, and am well satisfied that it is not farcy, or glanders and farcy, but a purely benign disease. With no previous knowledge of such a disease to guide me, taught also by veterinary lore and experience to regard "corded lymphatics" associated with

"buds" and ulcers as farcy, I may be excused if I was prompt to action and caused the perhaps unnecessary death of a few animals, for it is only by prompt measures that glanders and farcy can be controlled and eradicated. At the time I was fresh from a large and virulent outbreak of glanders (chiefly nasal) at Cawnpore, resulting in the destruction of thirty-five animals in a battery, the strength of which was one hundred and ten horses, and seventeen mules: also from lesser outbreaks at Nowgong in the Central Provinces of India, and at Meerut. Added to this, I had five years experience in Manchester before entering the Army Veterinary Department, so that I am not unacquainted with glanders and farcy in all its phases. Even when I had clearly proved to myself that the disease which I termed "Suppurative Lymphangitis was a benign affection, cases occurred where absolute diagnosis was extremely difficult, and where it was necessary to exercise the greatest suspicion and await events. I purpose relating each case as I met it, giving symptoms manifested, ultimate cure or disposal, and I am prepared to answer any question in elucidation. Some of you, I know, will be sceptical, and rightly so, but I am confident that if all had to go through the same experience of the disease as was my lot to undergo, the same conclusions would be arrived at.

A question that will occur to many minds, and which will require some thought and discussion is:—"What is farcy, and is the farcy of the disease known as glanders and farcy a distinct disease from the nasal form of glanders, and may not some of the so-called farcy cases in our own country be this benign suppurative or ulcerative lymphangitis." Vet.-Capt. Gunn, of the Bengal Veterinary Institution, was associated with me in the study of the disease, and I was extremely grateful to him for the very practical manner in which he carried out everything when pressure of remount work in my appointment as Veterinary Officer in the purchase of remounts at Calcutta prevented me from doing anything else. He, I am sure, could give a few very valuable notes on the disease. I received great assistance from Dr. D. D. Cunningham, Professor of Physiology and Pathology at the Medical College, Calcutta, in separating and cultivating organisms of the disease.

The general features of the disease are corded lymphatics and "buds," which eventually become ulcers. The usual locations are the inner aspects of the fore and hind limbs, the corded lymphatics running towards the brachial and inguinal glands respectiv ly: the ribs or sides with lines towards the brachial glands; and the face with lines from the angle of the mouth to the submaxillary gland. The corded lymphatics, or lines, nearly always have their origin in a wound, commonly a *bursatti* sore, say at the fetlock or angle of the mouth, or on the side from a spur wound. Some of the lymphatics develop "buds" and ulcers quickly; others remain in a corded state for

months. Unlike specific and contagious diseases, there is usually no rise in temperature: if there is, it is very slight. Affected animals remain in good condition and feed well.

Another phase of the disease is acute lameness of an articular rheumatoid type, from no apparent cause and suddenly manifested. I first met the disease in the cold season of 1892-3 in a horse belonging to the 43rd Field Battery, Royal Artillery, Barrackpore. The near hind limb was much swollen, and quickly developed corded lymphatics, buds and ulcers. I destroyed the animal as suffering from farcy, reported it as such, and put into operation the most complete regulations for the control of an outbreak of glanders and farcy. A short while after another case occurred and was also destroyed. About the same time while Veterinary-Colonel Francis Walker was making his annual tour of inspection he noticed a suspicious case of farcy in a mule of the Transport Calcutta. He requested me to see it and I destroyed it as suffering from farcy. It was under treatment for broken knee, and the ulcers, numbering over twenty, ran in lines from the wound to the brachial glands. In course of time three more cases, very slight, occurred among these mules. The slightness of the cases, the healthy appearance of the animals, their good appetites, the absence of an increase of internal temperature, and a rather peculiar granulative look about the ulcers made me suspicious that it was not glanders-farcy that I had to deal with, and I isolated the three mules for further observation, reporting to the head of my Department what I had done and my suspicions. Moreover my experience of glanders and farcy in mules is that they are more prone to virulent glanders than the farcy form. Veterinary-Captain Gunn saw the cases in consultation with me, and he was of opinion that they were not glanders-farcy. He had seen similar cases among mules in Burma and cured the ulcers by the actual cautery. At his request all the mules, numbering about twenty, were sent to the Lazarette at his College at Dum Dum, a few miles out of Calcutta. Thirteen ultimately became affected, some of them badly so, were treated by actual cautery and antiseptic dressings, and all made good recoveries. The best proof that they were not affected with glanders and farcy is that they took part in the Chitral campaign at the beginning of 1895, and as is known there was no glanders and farcy among the transport mules there.

I now return to the 43rd Field Battery at Barrackpore. Early in 1894 other cases occurred and continued at intervals up to the time I left the district, viz. May, 1896. The total during that time numbered twenty-four. The majority were cured, the usual treatment being cauterization of the ucers with the actual cautery (budding iron) and antiseptic dressings, oil of turpentine and vaseline being perhaps the best. When I last saw these

animals they were fit and well, doing their daily work, and perhaps the fattest and best conditioned horses in the battery. A good many of them were remounts of about one year's service. I am sorry I could not bring home the Army case book containing detailed accounts of the cases, but I have by me copies of the reports submitted. From these I have roughly compiled each case separately and will now read them, quoting extracts from the reports, and commenting on the cases as I go on.

Case I : February 2nd, 1894, battery horse No 72 :— Swollen lymphatic vessels and nine ulcers on near ribs, originating from slight spur wound. Had been isolated, and the ulcerations poulticed by Sergt.-Farrier for some days previous to my seeing it. I found the ulcers showing a marked tendency to heal, raised up in fact by granulative tissue. This was in great measure no doubt from the poultices, but it contrasted most markedly with the appearances met with in farcy. Sent to Bengal Veterinary Institution for treatment ; no increase of temperature.

March 1st : Ulcers and buds appeared on near side of neck.

April 6th : Is worse, more buds and ulcers have appeared along the course of the lymphatics of left side and flank towards inguinal gland, much swelling, the sheath of penis being included ; the ulcers and buds on near side of neck more numerous, in fact it is a loathsome sight and will in the end have to be destroyed as incurable.

May 5th : Report from Vet.-Captain Gunn, progressing favourably. Temp. normal.

May 23rd : Progressing favourably.

June 15th : Progressing favourably, ulcers healing slowly.

July 6th : Greatly improved since my last visit, the ulcers having nearly all healed and the animal in better condition. Temp. normal.

July 30th : Progressing favourably.

September 10th : Discharged cured.

This was a very bad case ; as ulcers occurred they were cauterized with the budding iron. The length of time under treatment was certainly long, but the cure was a good one as the horse was a "savage." I may say here that the operation of cauterization was usually done under the influence of chloroform.

Case II : March 1st, 1894, battery horse No. 57 :—A last year's remount, six years old, admitted to hospital 13th February for sprained ligament near fore fetlock, bursatti sore also at fetlock. Lymphatic lines and ulcers appeared along the course of the lymphatics from the sore to the brachial glands, also swollen lymphatics and ulcers from an abrasion near hind leg above hock. External aspect, temperature normal. Sent to Bengal Veterinary Institution for treatment.

April 11th : Decidedly improved, many of the ulcers have healed perfectly, and the affected legs are in a less swollen condition.

May 5th : Progressing favourably.

June 13th : Doing well, ulcers not all healed, but looking healthy. Temperature normal, animal in good condition.

July 6th : Greatly improved, ulcers nearly all healed, horse gained in condition since my last visit.

August 19th : Cured.

This horse was never sick again, and was in splendid condition when I last saw him. Rather a weedy horse when first received into the battery, he thickened out considerably after the disease.

Case III : March 1st, 1894, battery horse No. 9 :—Off-hind leg swollen, superficial abscesses and ulcers on inside of thigh, two or three ulcers in the flexure of the hock healing, and one also very superficial (apparently only under epidermis) at the back of the fetlock. Temperature 102°. Sent to Bengal Veterinary Institution for treatment.

April 11th : Shows improvement so far as the healing of the ulcers are concerned, but the affected hind leg is more swollen since my last inspection of the case.

May 5th : Progressing favourably.

June 15th : Much worse, leg very much swollen, abscesses apparently forming in deep-seated lymphatics.

July 4th : Destroyed as incurable. In conjunction with Vet.-Captain Gunn I made a post-mortem examination, and not the slightest trace of glanders was to be found. The lungs, liver, spleen and kidneys were closely examined, and were found perfectly healthy. The trachea and schneiderian membrane were in the same healthy condition. Sections of most of the organs were taken by Veterinary-Captain Gunn for hardening and microscopical examination. The diseased leg had become very large owing to thickening to the extent of two inches of the fascia tibialis.

Case IV : March 1st, 1894, battery horse No. 80 :—Shows a "line" or "cord" with three small ulcers on the side behind the girth.

April 1st : Discharged cured, but kept under observation for some time afterwards.

There was never any fever in this case, the horse maintained an excellent condition and its appetite was never impaired.

Case V : March 20th, 1894, battery horse No. 2 : Abrasions (probably from rubbing) and small abscesses on the nose and right cheek. They are in communication with an abscess in the submaxillary space : this has burst and shows a tendency to heal.

April 11th : Progressing favourably.

May 5th : The abscesses on right cheek and angle of the mouth, and the abscess in the maxillary space are

nearly healed. A little swelling remains. Temperature remains normal.

June 15th: Doing well, one small abscess lately formed is at present discharging pus. Temperature normal.

June 6th: Ulcers on the cheek are healed, but the whole side of the face, extending from the angle of the mouth to the superior angle of the lower jaw bone, remaining swollen. No fresh abscesses are forming. Temperature remains normal and the animal is in good condition.

July 30th: Abscesses on face again, worse than before.

As the horse was old and shortly to be cast, it was considered by Veterinary-Lieutenant Clarke, who was officiating for me while on leave, to be hopeless for further treatment, and was destroyed. Veterinary-Lieutenant Clarke found no symptoms of glanders on post-mortem examination.

Case VI: March 15th, 1894, battery horse No. 78: This was isolated, showing a double line of corded knotted lymphatics extending down the left side of the neck, just above the jugular space to the brachial glands. They have their origin in a dry-looking, clean-cut ulcer at the base of the left ear. This ulcer is about half-an-inch in diameter, and in no way resembling an ulcer of farcy, but is a bursatti sore from an abrasion by the head collar. From a bursatti sore in front of the near fetlock is another chain of corded knotted lymphatic vessels, running towards the brachial glands.

April 11th: The buds in this case have shown no tendency to suppurate; no change has occurred either for better or worse for more than a fortnight, the buds being very small and numerous. I have not opened them with the cautery. I first gave a purgative, afterwards potassi bichromate.

May 5th: The corded lymphatics and buds in the same condition; no suppuration. Temperature normal.

June 15th: In same state. Painted with tinct. iodine.

July 6th: Report by Veterinary Lieutenant Clarke says the corded lymphatics remain much about the same; one or two buds show slight signs of suppurating. The portion that has been painted with tinct. iodine is slightly softer; giving ferri sulph. ℥j., pot. nit. ℥js. daily.

July 12th: As the lymphatics and buds showed no signs of suppurating, Veterinary Lieutenant Clarke opened the whole with the cautery, afterwards dressed the wounds with solution of zinci chlor.

August 10th: Wounds are healing.

September 14th: Fresh buds and ulcers having appeared, another operation was necessary. Although a bad case, I have hopes of making a cure.

October 15th: To-day, when examining the case, I found a small bursatti sore about half-an-inch in diameter in the near nostril at the junction of the skin

and schneiderian membrane. There was also half-a-dozen ulcers of varying sizes on the schneiderian membrane, and several grey tubercules which would eventually have become ulcers. The left sub-maxillary gland was enlarged, and there was a slight discharge from the left nostril. Reference to the temperature chart showed an increase of temperature during the last day or two, and the animal had lost condition. These were characters that I had been anxiously looking out for for nearly two years. I had at last got a case showing nasal symptoms. I reported it as glanders, and had the animal destroyed. A careful post-mortem examination was made by Veterinary Lieutenant Clarke and myself, and in addition to the ulcers in the nostril, which, I may say, were only in the lower third of the schneiderian membrane, we found several caseous points in the lungs, but comparatively few. We were satisfied that it was glanders, but a very slow, cold, case. I have often thought of this case since, and knowing subsequent events as I do, experiments in inoculation, etc., I can only conclude that I was wrong in my diagnosis, and that the case was not glanders. Suppurative lymphangitis still went on, but there were no more nasal symptoms indicative of glanders. I particularly draw attention to the bursatti sore at the line of junction of skin and schneiderian mucous membrane. In other cases of suppurative lymphangitis ulcers and buds had originated in bursatti sores, why not in this? even though the ulcers were on a mucous membrane. They had not the true chancrous character of the glanders ulcer, but were quite consistent with a slow, cold form of that disease. Sections of lung and portions of the caseous material were sent to Veterinary Captain Gunn, and he informed me that Professor Haffkine was unable to find the bacillus of glanders. The horse was thirteen years old, and the treatment, necessarily severe, was continued for over seven months.

I have somewhat tried to explain away this case, but I am now satisfied that it was not glanders. It, however, shows to a marked degree the difficulty in differentiating the benign suppurative lymphangitis from the contagious glanders.

Case VII: April 21st, 1894, battery horse No. 109: Report,—"Another phase of the disease has developed, and in my experience of glanders and farcy it is also a common manifestation of that disease. This is an acute lameness suddenly manifested, rheumatoid in character and articular. In this case for many days I was unable to locate the seat of lameness. In glanders and farcy the semi-lunar cartilages of the femoro-tibial joint—the serous membranes of the capsular ligaments presumably—is a favourite seat of this acute lameness. Yesterday I was able to locate the lameness in the same joint of the near hind leg, and in the upper pastern joint of the near fore leg. A small abcess and ulcer formed in the

maxillary space, not a large, indolent, primarily deep-seated abcess that is met with in glanders and farcy, but small and superficial, and which discharged of itself in a few days, leaving an ulcer exactly the same as the other cases under treatment. Another similar ulcer appeared on the outside of near metatarsal bone. The animal has maintained a temperature of 102° to 103°. With such severity of lameness and acute pain in a contagious or specific disease, a higher degree of temperature would be expected. The discharge of the abcess has not reduced the lameness nor the temperature I have applied a blister to the affected joints."

May 5th : Extract from report,—"This case, though entered as rheumatism, I still consider belongs to the disease under consideration. Since last report the temperature has varied from 101° to 103°. From the acute pain in the limbs, the animal lies down most of the day, and has lost condition. On two occasions the temperature reached 104°, and was accompanied by dull, slow, internal pain. This I attribute to some derangement in the spleen, probably small abcesses. The temperature chart is very interesting, and perhaps more instructive than I can report, and I therefore annex a copy for reference. During the last two days the horse has been much easier ; there has been less lameness, he has filled himself more with food, altogether an improvement. The small abscess and ulcer in the maxillary space is nearly healed."

I quite expected and hoped this horse would die, that something definite might be learned from post-mortem examination. I examined the blood by microscope, and found nothing beyond an increase of the proportion of white blood cells.

June 15th : Report by Veterinary Lieutenant Clarke : —"This animal has greatly improved since last report. The pain and lameness have entirely disappeared, as has also the small tense swelling inside the internal straight ligament of the patella which appeared. The ulcer on metatarsal region is healing. No other abscesses are forming, and the temperature is normal."

July 6th : Extract from report by Veterinary Lieutenant Clarke :—"The ulcer on near hind metatarsal has healed, but the swelling on the inside of the thigh has again made its appearance, and another swelling has appeared on the inside of the near forearm ; no lameness. I have been painting these two enlargements with tincture iodine, with a view to their absorption, but as they seem to be at a standstill, I intend applying a blister of hydrarg. biniod, 1 to 8."

July 30th : Extract from report :—"The two enlargements mentioned in my last report have now nearly disappeared, and the animal appears perfectly healthy. I discharged the case as cured on the 28th July, but shall keep it under observation for some time."

This was a remarkable case, and a happy recovery.

Had it occurred in a glandered stud, it would certainly have been destroyed. The two successive attacks of internal pain, attended by a sudden rise of temperature to 104°, and which only lasted one day, were certain indications, to my mind, of either slight ruptures or small abscesses in the spleen. On two occasions in the outbreak of glanders at Cawnpore I had noticed the same thing, and verified it by post-mortem examination. From a bag of bones the horse eventually grew to most perfect condition, carrying a beautiful coat, and the pride of the battery. He was a well-bred horse, and bred by a man in Australia, whose horses are noted for their stamina.

Case VIII: May 5th, 1894, battery horse No. 65: Extract from report. This case was similar to previous case. "The animal was admitted for lameness in the near hind limb, and for several days, although the lameness was intense, I could not locate the seat. Subsequently I found the synovial capsule of the femorotibial joint distended, and with pain on pressure. The distension was within the straight ligaments of the patella, small, hard and painful behind the internal straight ligament. I applied a blister, but little good has resulted. The temperature varies between 101° and 102.2°. There are no external abscesses or ulcers."

This animal was discharged cured on June 1st, but kept under observation.

Case IX: April 11th, 1894, battery horse No. 89: This case showed three ulcers on the left temple. The actual cautery was applied, and the wounds dressed with ol. tereb. and vaseline 1 to 8. Temperature normal.

May 5th: Discharged cured, but kept under isolation for a short while.

Case X: May 1st, 1894, battery horse No. 81: This case looked very suspicious on account of intense lameness in the near shoulder and high temperature, as will be seen from the temperature chart. A purgative was given, and it was discharged cured on 6th May, though kept in isolation for further observation.

Case XI: May 1st, 1894, battery horse No. 77: A remount of 1892-3 season. It was admitted showing a "line" about a foot in length on the right side behind the elbow, commencing at a spur mark. The animal was isolated, and for several days no change in the "line" took place. Temperature 101.2° on 4th, slight swelling.

May 6th: Several abscesses appeared and were opened by the budding iron.

June 15th: Ulcers rapidly healing, with the exception of one, which is still discharging pus. Temperature normal.

July 2nd: Fresh crop of ulcers, extending on this occasion towards inguinal gland, about twenty in number. Operation again necessary.

July 30th: Discharged cured, but kept under observation for some time.

On the day following each operation the temperature went up to 102°, but only remained so for half-a-day.

Case XII: June 15th, 1894, battery horse No. 102: Report by Veterinary Lieutenant Clarke:—"This animal was admitted on 25th May, showing a large swelling in front of the near hind fetlock (apparently an abscess forming), great pain and lameness. A blister was applied to the part. On the 7th June, as the swelling noted above remained the same, and the upper part of the leg commenced to swell, I deemed it advisable to isolate it, and administered a full dose of aloes Barb. The day following the administration of the physic the temperature rose to 102°, going down to normal next day, where it has since remained. On the 9th inst. a line of corded lymphatics made their appearance inside the near thigh, extending from the groin to the hock. Buds rapidly formed along this line and opened, discharging pus. They were cleaned with lotis acid carb., and dressed with vaseline and ol. tereb., and are now healing. The animal feeds well, and has not lost in condition."

July 6th: Report by Veterinary Lieutenant Clarke:—"This animal has greatly improved, the ulcers being nearly all healed. The affected leg still remains swollen, but there is no lameness. Temperature remains normal, and the animal is gaining in condition. This horse has had no medicine beyond a dose of aloes just before the disease was noticed, and the ulcers have only been treated with argentic nitrate soon after they burst. Practically it has had no treatment, as I wished to see if it would recover without."

July 30th: Discharged cured.

Case XIII: June 25th, 1894, battery horse No. 17: Admitted showing the near forearm slightly swollen, with two small but distinct buds in front of the arm close to the breast. Temperature 101°, no lameness. A full dose of aloes given, followed by bichromate and nitrate of potassium. A few days afterwards two more buds appeared in line with the others, but lower down. A blister of hydrarg. biniodide was applied to all.

July 30th: The "buds" have opened, discharging a little pus from each. Two fresh ones have also arisen and opened, one midway of the metatarsal, the other on inside of fetlock joint. The whole leg is very much swollen, with some pain and lameness. The ulcers are being dressed with sol. zinci chlor.

September 14th: Still under treatment; several fresh buds have appeared since last operation by Vet.-Lieut. Clarke. The case was again operated on on 12th inst.

October 23rd: Extract from report:—Horse No. 17, a very severe case, was discharged cured so far as the disease was concerned, but since, it has been destroyed on account of inflammation and thickening of the sheath

of the flexor tendons. The animal was about to be cast for age, and the knee was becoming partially anchylosed. I considered it inadvisable to keep it any longer. I, however, assured myself that the "suppurative lymphangitis" was cured. A post-mortem examination of the animal was made and all the internal organs were beautifully healthy. It had been under treatment for one hundred and twelve days. The ulcers were so deep seated that sloughing resulted in exposure of the bursa of the tendons.

Case XIV: July 21st, 1894, Battery horse No. 103. Showed a small bursatti ulcer on the left angle of the mouth, lymphatics near the wound swollen and hard: sub-maxillary gland also swollen. Temperature normal: animal eating and looking well. On the 24th applied a blister to the abscess in the sub-maxillary space, which abscess opened on the 27th discharging laudable pus. One bud immediately above the angle of the mouth has opened. The bursatti sore is healing.

September 13th: Discharged cured.

Case XV: August 1st, 1894, Battery horse No. 10. Admitted on suspicion, swollen glands inside off hind thigh.

September 14th: A few small ulcers have appeared on the inside of thigh, case very slight.

October 23rd: Discharged cured.

Case XVI: August 13th, 1894, Battery horse No. 101. This showed a small swelling on the breast. Repeated applications of hydrarg. biniodide did not disperse it and it was opened by actual cautery.

September 30th: Discharged cured.

Case XVII: October 16th, 1894, Battery horse No. 45. Small bursatti sore on the inside of off hind fetlock; high up the thigh of the same leg were three small abscess-like swellings. These gradually enlarged and on the 9th November they were opened by actual cautery. There was no rise in temperature, the animal kept in good condition and fed well.

December 20th: Extract from report:—"Has since last report thrown out three more 'buds' in line with the first ones. These have been cauterized and are healing; the wounds caused by the first cauterization have all healed. Cured.

Case XVIII: November 19th, 1894, Battery horse No. 98. Small spur wound on near side with two or three small abscesses in immediate vicinity. Opened with cautery.

December 20th: Healing; will shortly be discharged. Cured.

Case XIX: November 20th, 1894, Battery horse No. 58. A small line of "knotted" lymphatics from a wound on the near shoulder, probably a bite. This after a few days disappeared somewhat.

December 20th: Proved to be a decided case of the

disease, seven buds having appeared and were opened by the cautery.

January 15th, 1895 : Discharged cured.

Case XX: December 14th, Battery horse No. 33. A small wound on the off shoulder, with two or three buds close to it in line. More buds and ulcers subsequently formed, and it was on the sick list till the March following.

I had no more cases till August next when the following case occurred :—

Case XXI: Battery horse No. 53. this was a horse that had been under treatment for exostosis tarsal (spavin) for months, had been "fired" and bursatti had broken out in the cautery marks. From these, corded lymphatics and ulcers occurred on the inside of the leg, over the true hock joint, and the bursæ of the flexor tendons above the hock. The bursæ were originally much swollen from the diseased condition of exostosis tarsal. The case was a very bad one and, as the horse was useless, I had him destroyed.

Case XXII: August 19th, 1895, Battery horse No. 41. Admitted into hospital suffering from wound contused on the flexor metarsi muscle of the near hind leg. Like most wounds in this station there was much granulation tissue and bursatti. From the wound, septic affection of the lymphatic vessels with buds and ulcerations has resulted. The original wound was caused by a kick from another horse. The animal is a remount of last purchasing season.

September 26th, cured.

Case XXIII: August 21st, 1895, Battery horse No. 86. This horse was admitted for saddle gall (sore back), the wound being quite bursattic. From April 8th to 29th it also suffered from "sore back" which developed ulcer bursatti from that date to the 29th May. From this wound corded lymphatics with buds and ulcers running over the withers and off shoulder have resulted. Neither in this nor the previous case is there any fever, the animals are in good condition and feeding well.

September 26th. Doing well: a few more pustules are forming; these I am leaving alone in order to procure pus for microscopical examination. From this case I inoculated four animals privately, the account of which I will give later on.

October 24th. This case is now cured. For some time no dressing has been applied to the ulcers ; they, and the original bursatti sore, have healed of their own accord, a quarter sheet being used to cover the sores and keep off the flies.

Case XXIV: December 23rd, 1895, Battery horse, No. not known. Two or three small buds on inside of near thigh. Slight case. Cured.

From this time till May, 1896. when I left India, I had no more cases. The total number treated was thus twenty four, twenty-one were cured and three were

destroyed. In describing the cases, I alluded to different methods of treatment and remedies applied, so I need not refer to them again. Parts were covered with gauze where possible, and ulcers with antiseptic cotton wool, to keep off the flies. Flies are most numerous from September onwards, less numerous in the actual hot weather, and where a large number of horses are collected together they love to dwell in thousands. Calcutta district, lying lower than most parts of India, and having more vegetation, is perhaps more afflicted with flies than other parts of India. It is often distressing to see sores covered with these persistent pests. What infection they carry it is impossible to say; the ulcers were regularly "fly-blown" which necessitated constant use of turpentine and a lot of labour with the forceps to extract the maggots. The cases, as can be imagined, were often a long time under treatment, particularly when the abscesses and ulcers were in the groin. Those destroyed were usually cases where pus burrowed in deep lymphatics among tendons and tendinous sheaths, almost hopeless to cure. These would be costly patients in civil practice. As cases occurred they were isolated, and as it was impossible to successfully treat them in the open air during the rainy season, I had an excellent durma matting shed built under the shade of some trees for their reception. This was cooler than the battery stables and would hold eight horses.

In addition to the prevalence of this disease in the Calcutta district, Vet.-Capt. Gunn met with it in Burma: so, I believe, did Vet.-Capt. Nunn in Calcutta district. In March last, while purchasing mules in Sikkim on the border of Tibet, I noticed several of them with small scars dotted about their backs. I asked the merchant what they were and he informed me that they were marks of a hot iron in treatment of a disease, and that this disease also affected other parts of the body. This no doubt was suppurative lymphangitis. These mules bring in wool from Tibet and usually suffer from sore back. They come from the Chumbi Valley in Tibet, but are said not to be bred there, and are probably bred in China. Another point which should entirely dispel any connection of the disease with glanders and farcy is that on the 21st May, 1894, I noticed two cases in transport *bullocks* at Dum-Dum, near Calcutta. I am not aware that bovines suffer from glanders and farcy.

Inoculations:—To definitely ascertain the true nature of the disease, and to arrive at some conclusion as to its connection with glanders or not, was highly important. for this purpose I applied for and obtained the sanction of Government for the use of cast horses for inoculation, provided no cruelty was inflicted and the animals destroyed when done with. Accordingly, battery horses Nos. 73 and 3, the former old and useless from "broken wind" and the latter from "ringbone," were handed over to me. On September 12th, 1894, No. 73 was inoculated

on each side of the neck, the hair being shaved off—patches about an inch in diameter—the skin scarified with a lancet, and pus, drawn from an abscess, well rubbed in. On the same day, No. 3 had pus applied to the schneiderian membrane of both nostrils. On the 22nd October, No 73 died from ruptured stomach ; there were no symptoms of suppurative lymphangitis up to the time of its death, and no traces of glanders on post-mortem examination. In the case of No. 3, pus was applied to the nostrils on three occasions with no result up to the following March when the animal was disposed of. On the 31st January, 1895, two other cast horses were inoculated by scarification by Vet.-Lieut. Clarke with no result. They were re-inoculated on 29th March, one with no result, the other with the following :—the part dried up, and the inoculation had apparenlly taken no effect. On the 18th April, however, one of the marks of scarification, a little deeper than the rest, opened out into a dry looking crack or hole, with indurated edges, and into which the flies swarmed. Two swollen lymphatic vessels appeared with slight ulcerations. I was not satisfied that this injection was the result of inoculation, and on the 23rd May re-inoculated the animal in three places, the forearm, the side near the girth, and the inside of the the thigh. Infection did not supervene. Temperatures were taken in all these cases : no increase was found.

The veterinary profession, from a bacteriological point of view, cannot be said to be well represented in India. For the investigation of the microbic cause of disease, one skilled in the fine use of the microscope and in the art of cultivation of organisms in different media, is required. It is beyond the ordinary practical man whose time and appliances are limited, and that must be my excuse for not having brought organisms of the disease, photographs etc. to-night for your inspection. I was fortunate in obtaining the assistance of Surgeon-Colonel D. D. Cunningham, Calcutta, and from pus collected from case No. 23 he made cultivations and separated a bacillus and a micrococcus. With a neutral salt solution of each, on the 11th October, 1895, I inoculated four horses privately, two with the micro-coccus, and two with the bacillus. On these occasions I injected the solution under the skin by means of a hypodermic syringe. Beyond a slight rise of temperature, for a few days following injection, and a slight œdema at the seat of injection, nothing resulted, and up to May (over six months) 1896, when I left India, they were perfectly well. I am sorry the temperature charts of these animals were left in India. I intended to have got a detailed account of the nature of the organisms and the cultivating media, but I left India sooner than I expected.

Many of you, I know, are wondering why I did not try the mallein test, and I have purposely refrained from alluding to it till now. The reason was, I was asked particularly not to use it till I had proved otherwise that

the disease was not glanders. Being of the anti-mallein school, I did not wish to bring any glanders, whether in one form or another, near my cases. It has, however, since my departure, been applied by Veterinary-Lieut. Martin who succeeded me, and the conclusion was "no glanders."

Causation :—The clinical appearances point to infection by organisms, and as Dr. Cunningham separates a bacillus and a micrococcus from the pus, these may be looked on as the microbic cause of the disease, in every probability the bacillus. Though cases occurred all the year round, the majority were during, and shortly after the rains, when work began. This is also the season of bursatti. Calcutta district, being very low and wet, bursatti is rather prevalent there, wounds usually heal tardily and with a tendency to bursatti. In a good number of the cases the corded lymphatics originated in a bursatti sore, and I am inclined to believe that there is some connection between the two diseases. The parade ground of the battery and the ground around the stables were low lying and usually covered with water during the "rains." It grows small sedges instead of grass. Soil and crop alike affected with bacilli, ready to grow in a suitable annual pabulum. We can reconcile cause and effect of the infection, whether it is introduced through a spur wound or a bursatti sore. The disease seems to be one of *locality*, the infection being local in its seat and directly or externally administered. It was suggested that the grass used for feeding in the districts of Calcutta might produce the disease. This is dhub grass, long, and grown in the low-lying salt-marshy country. The fæces of animals fed on it become black and often contain parasites. This, however, cannot be a cause, as all horses are fed on it, and I have never noticed the disease in private horses, stabled in private stables. In the battery, I substituted for half the grass ration, six pounds of chopped rice or paddy straw and one pound of linseed cake. I had fewer cases while on this diet, but that might be explained by the fact that from it the horses were in better condition, their skins particularly, and therefore less liable to infection from without.

In conclusion I will enumerate the cardinal points of the disease as distinguishing it from glanders-farcy :—

1. Absence of fever, or at least high fever.
2. Healthy look of animal.
3. Unimpaired appetite.
4. Appearance of ulcer, absence of the jagged chancrous character, but showing a tendency to healing by granulation.
5. Laudable pus. That obtained from a small abscess or bud is thick, of the consistence of cream, and whitish in appearance.
6. Cure, and condition of animal after cure.
7. Inability to produce the disease by inoculation.

8. Glanders and farcy not supervening after inoculation.

Mr. HURNDALL: One or two points occurred to me during the delivery of the paper. Suppurative lymphangitis, as we know it in this country, does not occur very often. At all events, I have only known a very few cases since I have been a member of the veterinary profession. Those cases which have come under my notice—I think only two or three—have been entirely free from any cording of the lymphatics. The leg has generally been swollen from the top to the bottom, and the temperature has been decidedly raised—as much as 105°. Twice within the last three weeks I have had a case of this sort. The method of procedure I adopted was such as I dare say will be quite strange to the great majority of the Fellows of this Society. But whether that is my misfortune or yours I will leave you to judge. When I found that the case was proceeding to suppuration, I simply resorted to a remedy to which I am accustomed under such conditions, namely, sulphurated potash. I found extremely good effects from the use of this drug. The case proceeded very satisfactorily, and the mare is now at work, although it is only three weeks ago that I was called to attend her, and the suppuration was then rather profuse. As soon as I began to administer this drug, the mare's temperature, which at first stood at 105°, was gradually decreased, and suppuration was reduced until the leg was perfectly cleaned up, and hardly any indications were left that the mare had been subject to lymphangitis at all.

Mr. TAYLOR remarked that Lieutenant Moore began his paper by asking what was farcy? Well, so far as he (Mr. Taylor) understood farcy, or knew anything at all about it, what Lieutenant Moore described as "suppurative lymphangitis" was simply what we know in this country as farcy.

Mr. N. ALMOND: We have two diseases sometimes spoken of as farcy in this country. Perhaps the speaker will be good enough to say which he refers to—true farcy or lymphangitis.

Mr. TAYLOR: I am speaking of true farcy, farcy such as we understand to be glanders farcy. What we call in this country suppurative lymphangitis has been described by Mr. Hurndall as a leg swollen from top to bottom—the hind or the fore limb—that takes a suppurative form. But there we get no corded lymphatics nor ulceration—at least, not that I have seen. Lieutenant Moore gave the reason why he did not try mallein. He said he was an anti-malleinist, and did not want to introduce glanders into his horses. Mr. Taylor went on to say that in the circumstances he should certainly have tried mallein. Lieutenant Moore said some organisms were cultivated and he should like to ask him what they were. Lieutenant Moore said one mule was affected, and then three more mules. Were the latter

infected by the former by contact? These cases were reported as glanders, the animals had ulcers on the "schneiderian membrane" and caseous points in the lungs. He (Mr. Taylor) should think these were "ulcers of glanders," especially as they were reported to be glanders after the post-mortem examination. With respect to the cases cured, he desired to know what became of them afterwards; was there no after history? was there no means of tracing whether the animals subsequently broke out with glanders or farcy. In a large stud with which he was connected, it was the practice years ago to patch up cases of farcy. When the animals broke out in the legs, and they knew very well that it was farcy, they used to give them sulphate of copper, or sulphate of iron, or a tonic, and they patched them up with a hot iron and the horses went to work. But since mallein had been introduced, if they came across a suspicious case they tested the animal with mallein, and if re-action ensued the animal was destroyed.

Captain HASLAM said he thought they ought to be very grateful for this instance of careful observation and clinical skill which had been brought before them that evening. He was under the impression that the cases mentioned came under a recent description of Professor Nocard. Certainly Mr. Moore's doubtful case gave him the impression that it was a case of chronic glanders, judging by the post-mortem appearances. He had had to do with several outbreaks of glanders. He found at the time he tackled those outbreaks that in most instances the cases were cases of chronic glanders. The post-mortem appearances were very like what he saw at Cawnpore. But he yielded to the results given by Professor Atkin, who, he believed, had probably more experience in dealing with the bacillus of glanders than almost any other man living. Captain Haslam proceeded to say that he supported Lieutenant Moore in reference to his diagnosis of splenic abcess. He remembered when at Cawnpore he had to deal, as Lieutenant Moore mentioned, with an outbreak in which 35 horses were destroyed. Lieutenant Moore had there experience of true glanders. He remembered being struck with a case of colic which occurred at Cawnpore. Lieutenant Moore, who was standing by at the time, asserted as his diagnosis splenic abscess. An autopsy showed that true splenic abscess was the undoubted cause of the colic.

Captain NUNN said that as his name had been mentioned he desired to say a few words. He had seen this disease, and the first time he fell into the error of destroying the animals right and left. It was a slaughter of innocents. That was during the Afghan war in 1879-80. He subsequent derived a good deal of information about the suppurative lymphangitis from the principal veterinary surgeon of the French Army, who had given him the benefit of his experience in regard to it. Mr. Taylor had referred to "bursatti ulceration." The true

"bursatti" to any one in practice in the East was almost unmistakable.

Professor Macqueen: I rise not with the intention of making any remarks or criticism upon the paper, but mainly with the object of thanking Lieutenant Moore for the great trouble he has taken in the preparation of his paper. I consider it is a very interesting paper. At the same time as a practitioner entirely devoted to cases in this country, I fail to see the importance of a contribution of the kind. My chief objection to the facts as laid down is that they are not conclusive on any one point. With regard to the last point mentioned by the essayist, the isolation of two microbes or organisms, you will remember—at least this was my interpretation of the reading of the paper—that, although Dr. Cunningham had succeeded in separating those two organisms, and that Lieut. Moore had inoculated some horses with the cultivated fluid, he failed to produce any result whatever. And yet the essayist concluded—at least that was my interpretation—that the organisms which had been isolated by Dr. Cunningham were to be accepted as the causal organisms of this particular disease. The disease is described as suppurative lymphangitis. It may be suppurative lymphangitis or it may not. It may be farcy or it may not. There is nothing to go upon except the clinical history, the temperature charts, and the general history of the cases. Speaking for myself only, I should have been much better pleased if I had had an opportunity of reading the paper in full before any discussion were commenced. In the absence of that opportunity, I have no further remarks to make.

Professor McFadyean: Mr. Chairman, I should like to be allowed to join in the tribute of thanks and congratulation that has been addressed to Veterinary-Lieut. Moore for the paper which he has just read to us. I think the painstaking way in which he has recorded the history, the symptoms and the post-mortem appearances of fatal cases reflects the greatest credit upon him, and I only wish that such correct observation and recording were more a matter of every day experience. But, after having said this much in commendation to Lieutenant Moore's effort and in congratulation of ourselves for having had the opportunity to be made acquainted with his experience, there remains one or two points in connection with his paper to which I should like to take exception. One of them has already been touched upon by Professor Macqueen. Lieut. Moore said that bacteriological science was not largely represented in the veterinary profession in India. Now in case it should be thought that we are equally behind hand in the matter in this country, I should like to protest against both the bacteriology and the logic which says that, because organisms were isolated from a particular sample of pus, these were the cause of the disease, or may be accepted as the cause of the disease. I join issue with Lieut. Moore on that

point, and I maintain that the facts which he narrated compel us in the meantime to believe that the organisms isolated were not the cause of the disease in question, and that a much more rigid line of evidence will have to be laid before us before we believe that salt has been put upon the tail of the organism that causes this disease. I do not agree with previous speakers who have indicated their belief that the disease observed and described by Lieut. Moore was true farcy, by which we understand now the cutaneous lesion caused by glanders bacilli. I think that the fact that the number of animals which exhibited rather extensive cutaneous lesions of the kind described were afterwards mixed with a large body of horses in the Chitral campaign without communicating glanders to these horses, compels us to believe that it was not true farcy. At least if I am wrong in this I would appeal to those who have had experience of cases of actual farcy apparently cured being introduced into large studs without any bad consequences. Then some of the cases, I think several, were submitted to post-mortem examination and, if I was able to follow the record correctly, there was only one in which lung lesions were found. Is that so?—(Lieut. Moore: Only one!) —Well, my experience again compels me to believe that, putting aside that one case, the others were not farcy. I have yet to meet my first case of farcy without pulmonary lesions accompanying it. I know there are members of this Society who have had immensely greater experience than I have had, but I have compared notes with some members of the Society who have been making post-mortem examinations of glandered horses for twenty years, and their experience has been the same as mine. They have not found true farcy without glanderous lesions in the lungs also. Then the other point on which I would like to make a criticism not entirely favourable was with reference to the use of mallein. It is very interesting to find that there is an anti-mallein school in India, or there was one when Lieut. Moore was there. We have not got any anti-mallein school in this country, or perhaps that is putting it too strong. I think I could find one or two men who are opposed to mallein who have never seen it and who have never used it, but I do not know any man who has used it who would class himself with the anti-mallein school. Perhaps before I sit down I might say further—because I am sure it will be gratifying to the members of the Society to know—that the anti-mallein school is at the present moment not in the ascendency in India, as I happen to know that mallein is now being used by the direction or with the sanction of the principal veterinary surgeon in India. Mr. President and gentleman might I venture to move, as the discussion on this subject is possibly not yet exhausted, that this meeting be continued until half-past nine. I am induced to do that particularly because we are fortunate enough to have with

us as a guest this evening, Professor Ewart, professor of natural history at Edinburgh University, who has brought with him some things which I am sure the members of this Society will see with great interest. A few minutes will suffice for the exhibition of these objects, if time remains after the discussion of this paper is exhausted.

Mr. Reekie seconded the motion, which was agreed to.

Mr. Butters: Mr. President and gentlemen, I should like to make one or two remarks upon the very excellent paper which has just been read to us by Lieutenant Moore. I think, as previous speakers have said, we should congratulate ourselves upon having so able a paper brought before us, and perhaps the more so because the essayist takes a view of the subject from which those who have had some little experience of farcy and glanders in this country would dissent. The clinical symptoms of this disease which he describes are, to my mind and in accordance with my own experience, those of true farcy; and, until recently, any animal exhibiting such symptoms would, in compliance with the law, have been destroyed. Of course it was too late after the animal had been destroyed and it was found on a post-mortem examination not to show any lung lesions, to say that the disease was not farcy. The conclusion at which we arrived in that case was that the animal had the early stages of farcy, and that the disease was not fully developed. Since the introduction of mallein I have met with one or two cases, as far as my memory serves me, which presented these symptoms. There was the formation of abscess, cording of the lymphatics, and in one case, in the cord of the lymphatics of the arm, there was an abscess, while there was another abscess of the knee, and the lymphatics of the arm right up to the chest were corded and inflamed. I was rather puzzled over this, and I tested the animal with mallein. It gave no re-action. Ultimately I made a very good recovery of it. Such cases which were probably previously described as farcy we are now able to differentiate from true farcy, which they resemble very much.

Reply.

Lieutenant Moore: Mr. President and gentlemen, I must say that my "Essay" was a very long one, and the citation of so many cases must have been tedious to hear. With regard to mallein, let me say that the cases to which I referred occurred in 1892-93. That was before mallein was introduced into India. It was not received there, if I remember rightly until 1895. I really knew nothing about mallein, and that was why I would not have it near my cases. Two of the cases to which I alluded in my paper cleared themselves with any treatment. I do not think farcy would have done that. This disease must either be farcy or not. If it is farcy then all the animals affected must be destroyed, and it would certainly be a

loss to the Government of India if these cases were destroyed. Something was asked about the after history of cases declared cured. Well some of the cases have remained perfectly cured for two years and over, that is from 1892-93 to 1896-97. And I am sure if anyone of you saw them, you would agree with me that they had never had farcy. I was asked whether I thought that one mule had communicated the disease to another. I do not think so. I think they all contracted it from the same cause, the local cause, the locality. I am sorry to say that my attempts at separating organisms were very crude. I had too much work to do, and the appliances allowed in India are certainly not equal to the discovery of organisms. My microscope and slides were bad. Such things are issued from the stores, and then in the course of a month one receives a memorandum to "please return the appliances to the stores again." That sort of thing is not conducive to thoroughness of work. (Laughter.) To-day I had a letter from Professor Williams, and he tells me he has seen this suppurative lymphangitis in bullocks in Jamaica in one or two instances. I don't think I have any further remarks to make. (Applause.)

The Chairman.—I did not see in India the particular disease to which Mr. Moore's paper refers. But I dare say you have all seen, as I have, in the *Recueil de Mèdecine Vétérinaire, Fev. 15me*, conclusions at which Professor Nocard has arrived and which, perhaps, I may be pardoned for reading :—

1st.—There exists in the horse a suppurative lymphangitis, in which the clinical signs are insufficient to distinguish from farcy. (Mosseux.)

2nd.—The pus of this lymphangitis inoculated in the "peritoneum" of the male guinea pig prorogues a inflamation, just like the pus of ordinary farcy. On the contrary the injection of mallein does not prorogue absolutely any reaction in the horse attacked or suspected of this pseudo-farcy.

3rd.—The bacteriological study of this lymphangitis shows that it is due to a special bacillus—easy to distinguish from Loeffler's & Schütz's bacillus—by the aspect of its cultures and more easily by the fact that it takes admirably le Gram.

I have nothing else to say except, perhaps, to propose a vote of thanks to Mr. Moore for his very great kindness, and the trouble he has taken in preparing this paper for your discussion this evening.

Mr. Hurndall seconded the motion which was carried unanimously, and suitably acknowledged by Lieutenant Moore.

Professor Cossar Ewart's Specimens,

Professor Ewart, F.R.S., of the University of Edinburgh, exhibited specimens and drawings of a number of young horse embryos, and a series of photographs, in-

cluding amongst others, three zebras; the zebra-mare hybrid 'Romulus'; his dam 'Mulatto' and the Arab horse 'Benazrek.' The drawing of the four weeks embryo showed that the horse when about a quarter of an inch in length, could not readily be distinguished from any other mammal—from, say, a human embryo of the same age. The five weeks embryo (which appeared to be half-an-inch in length) was at an extremely interesting stage. Indications of the second and third digits were visible, and they had about the same relation to the middle digit as in the now long extinct three-toed fossil horse Hipparion. In the six weeks embryo (about three-quarters of an inch in length) the gill clefts, quite distinct in the smallest specimen, were closed, and the limbs were beginning to assume an equine form. Perhaps most interest centered in the seven weeks embryo which was just over an inch in length. In this specimen the critical stage had been more than reached, the limbs were distinctly horse-like, and an indication of the frog of the foot was already visible. But what is of more importance, by seven weeks the sex is already settled, and two small teats are easily seen with the help of a pocket lens, further, in this embryo hairs are in process of developing in the region of the snout and eyelids. The eight weeks embryo, though only two inches in length, was already a miniature horse. Four drawings showed the tail and hind limbs of the four youngest embryos were especially instructive. The tail, at first coiled and many times longer than the hind limbs, had straightened out, and by seven weeks is considerably shorter than the limbs. Professor Ewart, who still requires additional young embryos from half-an-inch to six inches in length, was much gratified by several members of the Society offering to add to his collection.

The large photographs of the zebra-hybrid, and of his sire and dam, created much interest. From two coloured photographs it was possible to note the striking difference between the jet black dam and her cross-bred colt, and also that alike in his colour and in the plan of his stripes the hybrid was extremely unlike any of the existing zebras. It was pointed out that in some respects the striping recalled the now extinct quagga, while in the tattoo-like marking of the face the hybrid resembles the Somaliland zebra. The professor was able to announce that Mulatto is undoubtedly in foal to the Arab horse Benazrek, and that news of the colouring etc. of the second foal—due in July—is anxiously awaited both by men of science and breeders in all parts of the world.

Professor McFadyean: Mr. Chairman, I rise solely for the purpose—in a very few words—of moving that we record a most hearty vote of thanks to Prof. Ewart for having brought these interesting things before us. (Hear, hear.) I think it is only right you should know that Professor Ewart has come here to-night at con-

siderable inconvenience to himself. He actually came across from Holland to-day in order that he might, if the opportunity offered, show the things to us this evening.

Captain HASLAM: As an old friend of Prof. Ewart allow me the privilege of seconding the motion.

The CHAIRMAN: You have heard the proposal and I am sure will adopt it by acclamation.

The motion having been carried with applause, the meeting ended.

WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

The annual general meeting was held within the Religious Institution Rooms, Buchanan Street, Glasgow, on Wednesday, 10th February, 1897. Dr. James M'Call, President of the Association, in the chair.

After the SECRETARY had read the minutes of last meeting, and also the Financial Statement, both of which were approved of,

The CHAIRMAN said the Association, as you see, is still solvent. I hope this year we will get a considerable number of new members. By doing so we will soon increase the balance sheet and make it larger than it has been.

ELECTION OF OFFICERS.

Mr. WILLIAM ANDERSON: At a recent meeting of the Business Committee of the Association it was arranged that the present office-bearers should be asked to continue in office for another year. We have only had two meetings since the appointment of the present office bearers so that it is only right that we should ask them if they are agreable to accept office.

The SECRETARY then read the list of the present office-bearers:—*President*, Dr. James M'Call; *Vice-Presidents*, Mr. Macfarlane, Greenock, and Mr. Peddie, Cathcart: *Secretary* and *Treasurer*, Mr. Hugh Begg.

Mr. ALLAN; I beg to second Mr. Anderson's motion. The motion was unanimously carried.

Mr. P. BLUE was also elected a vice-president, and Messrs. Frew and Brownlie were elected auditors.

The CHAIRMAN: Gentlemen, speaking for myself and the other office-bearers, we will be pleased to take office again for this year, and will try and carry on the work which we have been engaged in. We have had a considerable amount to do, but at the same time we were quite well able to get over it and I think that at the end of this year we should be in a very good position for getting on a number of new office-bearers, because the old story about new blood will come in then, and probably at the next meeting we will get a completely new list.

The next item in the business is to submit the revised rules of the Association. In regard to these rules a sub-committee was appointed, and we have gone over the old rules very carefully and have deleted some of them in part and added some things which seemed to us to be advantageous to the Association. To-day we have copies of these new rules, and the sub-committee will be very pleased if each member will take a copy of them and read them over carefully. If there is anything might be improved I am sure that at the next meeting we shall be ready to consider these proposed alterations and take them in hand.

New Members.

As this is the first gathering for this year, we would like to get as many new members as we possibly can, and I have much pleasure in asking you to bring before us the names of gentlemen, members of the profession, whom you think it would be advisable to have as members of our Association. I will start by proposing that Mr. John Brown, a member of the Royal College, be elected a member of this Association. Mr. Anderson : I beg to second that.

The following gentlemen were also proposed and seconded :—Mr. John M'Neil, Greenock : Mr. Robert Miller, Strathaven ; and Mr. James Nisbet, Galston.

A Question of Warranty.

The Chairman : Mr. Inglis has a case which he would like to bring before us and get our opinion on, and, as that is one of the main standpoints by which the Association is supposed to do good, it is always our wish that any interesting item in that way should be brought before us. I am sure Mr. Inglis will get a very patient hearing from us and an honest opinion.

Mr. T. M. Inglis, (Forfar): I beg to bring before you a peculiar case of cow warranty. These cases lead to disputes occasionally, and this case was brought up last week at the Forfar Sheriff Court. I don't need to say that as a rule, or very often at any rate, doctors differ. This is a case where a farmer purchased a cow at the Forfar Auction mart, warranted calved and correct. The cow was taken home on the same day, the Monday, and she went on all right till the Wednesday night, though she was a little dull. Nothing else was noticed wrong with her by the purchaser until the Thursday when she began to strain and press a good deal, and he observed a portion of the afterbirth appearing. He at once sent to the auctioneer and called in his veterinary surgeon, who found her suffering from inflammation of the womb, due, in his opinion to the retention of the afterbirth. He removed the afterbirth and washed out the womb with antiseptics which gave the cow immediate relief at the time. She seemed to be a little better next day, but on the Sunday following she gradually

sank and died. The seller would have nothing to do with her. The case was taken to the Sheriff Court and the veterinary surgeon for pursuer, who was the purchaser, stated in his evidence that a cow could not possibly be calved and correct if she had retention of placenta, holding that the actual operation of calving was not complete till the placenta was expelled. He also said that a purchaser buying a cow with retention was doing so with a risk. We know from experience that unless it is expelled very soon after parturition putrefaction sets in and absorption takes place. There were two veterinary surgeons for the defence—I don't want to bring in any names because it is a case of warranty—one stating that "calved and correct" was a warranty of being correct in the teats and as a milker only, and that a cow was a "correct cow" although she had not parted with the afterbirth, and that it was a natural process; also that the animal would remain a correct cow with this afterbirth in the womb for about forty-eight hours or so, meaning, I presume, that it is not uncommon for the afterbirth to be retained for forty-eight hours after calving. This gentleman also said that he would as soon purchase a cow at a market that had not got rid of the afterbirth as one that had, and, when asked if it was not a dangerous thing to place a cow with retention in a byre amongst other calving cows, he said it was not unless the cow had absorbed. The other veterinary surgeon said a a cow was "calved and correct" for twenty-four hours although she had her afterbirth in the womb, and that the warranty correct meant as a milker only. It is held that no man, whether a dealer or professional man, can say to an hour when an afterbirth will come away. No man can tell how long it will hang on a cow or when she will cast it off. Although the case has been taken to avizandum, I am of opinion that the extra weight of professional evidence will turn the case. If it is decided against the pursuer it will give rise to no end of trouble, and will leave us in a peculiar position as to what is really meant by being calved and correct. The questions arising in the case are—

I. Is the act of calving complete when the afterbirth has not been expelled?

II. Can a cow be warranted calved and correct with retention?

III. Is retention a defect?

I cannot just remember the exact words of the gentleman for the defence, but the above details are what I understood them to say when hearing their evidence .The opinions for the defence appear to me to be of a different nature than those we are taught at the colleges. It is a well known fact at cow sales that if a purchaser gets the least hint that any portion of the afterbirth has been retained he will scarcely give a bid for the cow unless at a risky price. Surely there must be a cause for this deterioration in value, and suspicion on the part of intend-

ing purchasers. We all know that retention is very common with milk cows, and although a great number of them exhibit no bad symptoms from it, still they may and do suffer. Surely this brings retention under the headings of "risk and defect." I would like if those present would give their opinion on this subject, because auctioneers and veterinary surgeons don't know what warranty to give with their cows. It seems just to be a case of cleansed or not cleansed.

Mr. Douglas : I have just in mind several cases. I remember two distinctly on the same lines. A cow, in my opinion, warranted "calved and correct" must be cleansed. Since the Kilmarnock Auction Mart started we have had several cases where a cow was sold, said to be calved and correct, and afterwards we got portions of the membrane retained. In a case in Dumfries the sheriff decided at once in our favour ; and in two I remember distinctly in Kilmarnock, before Sheriff Hall, in each of which the decision was given in favour of the pursuer, and I cannot see, either from a professional or common-sense standpoint, how the act of calving is complete till the membranes are separated.

Mr. Anderson : I have also been a witness in several of these cases. Some sheriffs hold that after a cow is warranted correct and not calved, unless she cleanses thoroughly after calving, the cow has been unsound at the time of sale. Now I think that is carrying it rather far. My opinion is that if a cow is not calved, the buyer must take the risk of calving, whether she calves and cleanses correct or not. If a cow is calved and retains the cleansing, I say that until she does cleanse properly she is unsound and disconform to warranty. It is astonishing the different opinions you will get from the different sheriffs, not only in warranty of that kind, but in regard to the teats and other peculiarities at the time of parturition. So far as Mr. Inglis's case is concerned, I gather from him that the cow had calved, and was sold as a calved cow and then retained the cleansing, and died through the retention of the cleasing. I certainly think that cow was unsound at the time of sale. Of course the environments must have a great deal to do with it. Supposing the buyer was careless in allowing the animal to get cold and the like of that ; these are matters that have to be taken into consideration, but providing the animal has been well cared for after the sale and dies through the retention of the cleansing, I think it was unsound at the time of sale.

Mr. Inglis : The whole case has turned on the word "correct ;" what is meant by "calved and correct?" That is the turning point of the case.

Mr. Anderson : In the West of Scotland I know that "correct" means correct in the vessels, and in other sales I understand the word "correct" means "sound."

Mr. Douglas : In Ayrshire the word "correct" means sound in health and teats as well.

Mr. Cassels : In regard to the Lanark Auction Mart, the conditions of sale are calved and correct in vessels only. In Wishaw Sale it is calved and correct, and "correct" means "sound." If it is proved after the purchase of a cow that she was suffering from any disease prior to sale, then it is an unsound cow.

Mr. Inglis : Is a cow calved that has retention ; can you say she has calved ?

Mr. Weir : I have heard with interest the story of this cow, but I would like to know what was the result of the post-mortem. Was it septic metritis ?

Mr. Inglis : Yes.

Mr. Weir : I understand the cow had both a special and general warranty, by being warranted calved and correct. If it was calved, it included the whole of the course of calving, but "correct," in my opinion, means that the whole cow as a cow is a sound one. I remember the case of a horse which was bought from Mr. Robb here about twenty years ago, and Mr. Robb gave a warranty that the horse was a correct one. The horse went to the South of England, and died two months afterwards of fatty degeneration of the liver. That case was carried to the Inner House of the Court of Session, and it was decided that "correct" meant soundness in everything. Mr. M'Call was in the case, and Mr. George Fleming, who was then in the Army, was the gentleman who made the pathological specimens of the liver and exhibited them at the case. I remember the case perfectly. Mr. Robb never denied saying the horse was correct, although he did not intend that that warranty would cover two months in futurity,

The Secretary : Some cases that I have been connected with in court have been somewhat similar. The sheriff always took into consideration the rules of sale. The only auction sale we know of where the word "correct" is used and does not guarantee the whole of the animal is the Lanark Auction Mart. They use the word "correct," and say that that only guarantees the udder, and not the soundness of the animal's constitution. What does the Forfar Auction Mart say ?

Mr. Inglis : I think it says that the cow cannot be returned unless it has some defect or disease. I see Professor Dewar here, who, I am sure, has a great deal of experience of this sort, and I would like to hear his opinion on it.

Prof. Dewar : I am at some disadvantage in not being here to hear the whole account that was given in the case, but it all depends on the warranty given with the cow. If the cow was calved and sold as being correct, perhaps it was correct at the time. You don't expect the cleansing to come away within eight, ten, or twelve hours. If the cow was sold in that interval as correct and the buyer knew she had not parted with the cleansing, I would consider the buyer was taking the risk, but if a buyer bought her on the understanding that the cow

had been cleansed, then undoubtedly he was labouring under a disadvantage and misapprehension and ought to have his relief in the court of law.

Mr. Inglis : At the time the cow was looking very well indeed, and no pressing and nothing to be seen that would indicate there was any of the after-birth present, and she was warranted calved and correct.

Mr. Cameron : I think it is a very sad case that any member of our profession should be got to defend any such case under such circumstances. I think the word 'calved' would include the whole thing, apart from the word 'correct.' How could you say that a cow is thoroughly calved when there is still a portion there that should come away, and if she were only newly calved and the placenta hanging from her it would not be half so bad as a case like this where all the external portion was away, leaving people in the dark about it. I think the thing does not require two considerations from any person, apart from the scientific aspect of it.

The Chairman : I have listened to the discussion with regard to what is meant by calved and correct, and I think that in order to arrive at a satisfactory conclusion we want the rules of the mart that the animal was sold at. I think the whole case hangs on that. If 'calved and correct' means, as some of the members here have stated, that the cow has calved and everything has passed away in the natural manner, and if the animal was sold and part of the membranes had not passed away, she therefore could not be a correct cow. At the same time, if "correct" means correct in udder, then it seems that the rules of the sale ring ought to be altered to give both buyers and sellers a chance. I feel with Mr. Inglis that it is very hard lines on a man who has bought a cow if he bought her as a correct cow, and by that understood not only the calf had come away, but the membranes also, and he is left in the dark. I think he has a very good claim to work on, but if a man buys a cow in 24 hours after calving and is told that the after-birth has not passed away it will be a matter then for him and the buyer to arrange who takes the risk. There is room for discussion quite well on this subject. I think it would mainly hinge on the rules in force in the sale ring.

Mr. Inglis : The auctioneers who sold the cow was one of the witnesses—of course this is only my word for it—and he stated that in his opinion calved and correct was calved and cleansed. There was no special warranty on the bill of sale, but the warranty was proved right enough about being calved and correct.

The Chairman : Perhaps the better way would be to put it in this form, whether should the term "calved and correct" include the completion of the act of labour, or whether, in our opinion, it should include calved and correct in the vessels only.

Mr. Anderson : "Calved and correct" means calved and sound. Of course we cannot alter the different

rules of the various auction marts, but in our opinion I think we can give Mr. Inglis the satisfaction of knowing that "calved and correct" means calved, clean, and healthy.

The CHAIRMAN: Or if it does not mean that it ought to. Is it the unanimous finding of the Society that "calved and correct" if it does not mean calved, clean and healthy, ought to do so? (Applause.)

LAMINITIS.

By T. A. DOUGLAS, M.R.C.V.S., Kilmarnock.

Gentlemen,—Were I to say, as is customary, that I have pleasure in coming before you to-day as essayist, I would be stating what was not my mind on the matter, whatever other people may think when they say so. In suggesting at our last meeting the advisability of having two or more short papers of a practical character I had not the slightest idea that I would be asked to contribute one of them, far less that I would have consented to do so.

The selection of a subject worthy of our consideration gave me very serious consideration, and I trust that by the selection of laminitis, from the frequency of its occurrence, and the many causes from which we have the abnormal condition of the horse, we will have a good discussion. Laminitis is produced by a variety of causes; from over exertion, over feeding, indigestion, diarrhœa, metritis, retention of the placental membranes in the mare—the latter, being from septicæmia, is sometimes, nay, I might say always, of a very obstinate nature. A subacute and also troublesome form is sometimes a consequence of influenza, from the animal remaining too long in the standing position and the sluggishness of the circulation. Concussion from galloping on the hard ground is a frequent cause of true laminitis. A chronic form is also very common from bad shoeing, and from sand etc. getting underneath leather soles. I am not so sure but that the old term of founder is as applicable to a large number of the cases as laminitis, or fever in the feet. Seeing the condition arises from so many causes, and that with proper attention to the general condition of the animal constitutionally, with a very little attention to its feet, is followed by the immediate return to the normal condition, forces one to the conclusion that it is prostration from atonicity of the general muscular system due to nervous irritation, thus simulating a ship foundered, which I believe the term founder was originally derived from, and that to be accurate, if we believe the abnormal condition to be confined to the feet we ought to call it congestion of the feet rather than laminitis.

It is unnecessary for me in a short paper like this to enter into the anatomy of the foot, suffice it to say that

the horse's foot is a very vascular and highly sensitive member of the animal economy, and from their very delicate nature, the laminæ, when very slightly congested, show excessive pain from being enclosed in a firm horny unyielding box.

Laminitis is generally confined to the fore feet, occasionally it occurs in all four, sometimes only in one, but during the past seventeen years I have only seen one case where the hind feet only were affected. In this animal separation at coronet took place, yet the fore feet remained cool throughout. Symptoms of an acute case of laminitis or founder are general stiffness and unwillingness to move, hurried breathing, and in a bad case sweating; difficulty in lifting a foot up from the ground; but I venture to say a pathognomonic symptom is when the animal is caused to move backwards the heels of the feet are drawn along the ground, not lifted and put back with a step in the usual way. You will pardon my emphasising this symptom, for we all know the great advantage of correct diagnosis, and this symptom we do not find in other diseased conditions which might simulate in some respects laminitis, *e.g.*, rheumatism, influenza, and azoturia. There is generally a full, hard pulse, but temperature may be only slightly elevated considering the other clinical signs; feet sensibly hot to the touch, and distinct beating of the pulse in the pastern; the placing of the fore feet out in front of the body, and the hind feet drawn under holds good when fore feet only are affected.

We shall now consider the treatment of an ordinary case from any of the causes already enumerated, and return to symptoms and treatment of sub-acute and chronic cases afterwards. The difficulty of obtaining reliable information in many cases renders our treatment accordingly difficult, *e.g.*, we are called to a case possibly same night on which he has been out and done a hard day's work, but more generally next morning, we are told he has just done so and so, but he fed all right and looked quite well at night; but there is nothing said about the extra feed of oats he has got to make up for the big day—through mistaken kindness. This extra bite, let me say in passing, is in my opinion the most frequent cause of laminitis, and the moral is, rather give a horse a little less when extra tired than any extra bite. The first thing to be done in all such cases is to withdraw from the jugular vein from one to four pints of blood, depending on the size and condition of the animal, then remove shoes from the affected feet, and get the feet into a tub of warm water, kept just as hot, for at least two hours, as you can put your own hand into. Then a warm poultice put on to the feet, with a good dressing of mustard made into a thin cream with cold water all over chest walls, abdomen, loins, and fore legs, down to poultices. Hind legs and hind feet poulticed too if thought to be affected, and body warmly clothed at all

times, the quantity of course depending on the season of the year, the stable, etc., and turned into a loose box so that it will more likely lie down. The medicinal treatment must depend on the cause. If from over-feeding then a purgative and stimulant drench must be given, such as powdered aloes Barb., 4 to 10 drams, tr. ginger fort, 4 drams to 2 oz., or powdered ginger up to one ounce, nitrate of potash up to 1 oz., chlorodyne to 4 drams. If from metritis, or after foaling, similar treatment, full doses. If diarrhœa for aloes substitute ol. lini and glycerine, equal parts up to two and a half gills each, and increase the dose of chlorodyne, these to be followed next day by febrifuge medicine as is required, and repetition of steaming and poulticing twice daily at least. This, in the majority of cases, will result in recovery by resolution, by this I mean the animal will be restored to its normal condition in from 24 hours to one week without any structural changes taking place in the feet.

If the animal is not visibly relieved in forty-eight hours the foot must be opened on front of the wall, just so as to be above the sole, thus you relieve the foot by allowing the escape of the exudate which by this time has collected. This I would specially note, as during the past four years I have thus operated on six animals with gratifying results. Previously of course I had attempted by hot applications, and by stimulation at the coronet, to get rid of the exudate. I had also opened the foot on the sole at the point of toe close to the wall, with very unsatisfactory results, the formation of the usual false hoof between the horny and sensitive laminæ, and convex thin soles as the result. Now, in my experience of the six cases, this may all be obviated. With the edge of rasp and a drawing knife make an incïsion into the foot, on the wall at the toe about one third up, or just about in a line with the nail holes, it is not necessary to make a large opening which would be difficult to protect after, but an opening must be made, and the feet immersed in hot water for an hour, when it will be found to be well stained with blood. With hot water and poultices alternately, and febrifuge medicines, by next day the animals in all cases were evidently relieved, and recovered rapidly, with very strict attention to the wounds antiseptically with acid boric, pulv. alum, and iodoform, until it was healed. The cavity in the hoof was afterwards filled with beeswax and smeared over with hot Archangel tar.

In chronic laminitis, I have found that standing in cold clay, made very soft, deep enough to cover well the whole foot, and kept in that for twelve hours out of the twenty-four, for the other twelve turned into a comfortable loose box, with a dose of purgative medicine has in my experience been more satisfactory than hot poulticing ; but on account of the difficulties attending this treatment it is not often tried. Purgative medicines,

hot poulticing, and blister round coronet, with rest, is generally sufficient, with proper shoeing. To keep the sole perfectly free from pressure it is necessary to have an extra thick and broad shoe, well seated out on solar surface; and of course a plain shoe in sub-acute laminitis brought on by too long standing, either in all four or in one foot only, in addition to the treatment already mentioned in a modified form; no bleeding except in acute cases. I have experienced great benefit from the use of the slings. Some other terminations of the disease, are suppuration, sloughing of the hoof, caries and necrosis of portions of the pedal bone. These must be treated according to the symptoms presented. Some of these might with safety be relegated to the class of patients that "do worse than die," except in such as a good stallion or mare for stud purposes. This may open up the subject of heredity, but I must not enter on that subject now. I had intended refering to other methods of treatment, especially that known as Mr. Broad's, but time forbids.

Discussion.

The Chairman: We have all heard Mr. Douglas's paper and, so far as I can gather, there are a number of points which will evoke a lively discussion. I shall say nothing on these points at present, because I want to hear what the opinions of the members are.

Mr. Anderson: There is not much to discuss about this disease. If I ask one veterinary surgeon if he is successful he says yes, and if I ask another one it is the same thing, yet they treat them differently, and my opinion is whether it is hot or cold water, or whether you open the foot or not, you will have cures. There is something in the opening up process. I tried it in one very bad case, but I went further than Mr. Douglas. I opened it from the toe right up to the coronet, and it certainly did give a great amount of relief. As for the hot water, I use hot water and hot poultices for the first day or two, and cold applications and cold poultices afterwards. Unless a horse is scouring I give physic, but if the case is due to over exertion I don't, because in these cases you have it accompanied with purging. Really the treatment in every case depends on the merits of that case; I don't think there is any hard and fast method of treating it. Mr. Douglas has certainly given a very conclusive opinion about it so far as the opening of the wall is concerned and it may be profitably exercised by some of us, more especially if it is a very painful case.

Mr. McFarlane: As Mr. Anderson has said it is a

disease which every one has his own treatment for. I agree with Mr. Anderson about giving hot fomentations first and then cold, and I say that when you require to give a purgative give the horse a ball. Twenty-five years ago I used to give a solution, but now I always give the horse a ball. I find it does not take so long to dissolve in the stomach. Mr. Brownlie and I were students together, and we have seen a horse given a purgative ball and killed in half an hour afterwards and not even a particle left in the stomach. Why then should you give a solution? I find antipyrin is very good. It is tasteless and you can give it in anything to drink.

Mr. BLUE: The only thing I have to complain about is the absence of cases at all. Twelve and thirteen years ago I am sure we had six cases of laminitis for one we have now. I believe it is nine months since I had a single case of founder. I don't know whether it is on account of the different feeding or not, but there does not seem to be much alteration on that either. I have never heard of Mr. Douglas's treatment before, and I think it is a very feasible practice to open the wall there. It is bound to relieve the pressure considerably. I remember when I was in practice in Mearns, before I came to this town, there was a special breed of horses there, "Lord Lyons," and every colt when they came to three years old—they were a flash class of horse for showing purposes—every one came down, both in their hind feet and fore feet, through the soles, and in many cases suffered no inflammation at all. The feet widened out and the sole came right down. I have been thinking that if Mr. Douglas' treatment was adopted in these cases, it might have been done with very great benefit. However, the first time I have a chance I will give it a trial.

Mr. BROWNLIE: As Mr. Blue has said, the only thing I have a complaint of also, is the want of cases. That may be attributed to the disuse of cooked food, which in my younger days we considered the cause of laminitis. I know that Mr. M'Farlane and I when we were at college were taught not to interfere with the foot at all, or the less the better. We were taught to bleed, and in any cases I have I certainly, like Mr. Douglas, bleed. So far as hot and cold water are concerned, I generally apply cold. In the winter time I perhaps get some ice or snow and apply it. I think cold water is much preferable, but I am a little like Pat, when he dreamed he was in Rome. He met the Pope, who said to him, "How are all the people in Ireland getting on?" and Pat said "Rightly." The Pope then said, "Will you have a glass of whisky?" and he said "Yes." "Will you take it hot or cold?" Pat said he would take it hot, and then he wakened and wished he had taken it cold. I have applied cold water, and found it most successful.

Principal Dewar: Mr. Chairman, Mr. Douglas, and gentleman, it certainly was not my intention to make any remarks in connection with the paper which Mr. Douglas has brought before the Association, but since he wishes it, I must admit that his treatment is very rational treatment. There is nothing better for relieving pain than to relieve tension. Pain, as a rule, is due to the compression of the terminations of the sensory nerves, or to the swelling and exudation caused by the inflammatory action, and if you can relieve tension by opening the hoof right in front of the lower part of the laminæ, there is no doubt it will relieve the place of matter. The only risk is the setting up of suppurating inflammation afterwards, but by putting on an antiseptic solution and water, there should not be much difficulty in maintaining the foot aseptic afterwards. While I am on my feet, I may remark I was a little struck when on the continent two or three years ago with the treatment which they adopted for laminitis in general, not only in France, but in Belgium, and at least in all French speaking countries. They applied the hot water, but they did not apply it long, only for a few hours and as a stimulant. They afterwards put round the coronets and pasterns, which must have been very irritable to the horse, simple turpentine. I happened to see one case which was very bad, in the Veterinary School at Brussels, and I saw the horse in the course of two or three days afterwards sound with his shoes on in the street. You would not have known there was anything wrong with him The turpentine did not act as a blister. It caused any amount of pain at the time, but it was a derivative by drawing the pain from the inflamed part. I was struck with Mr. Douglas's remarks about the old name of the disease. I think the last post-mortem I made of a case of acute laminitis—and from the remarks I have let drop the members will understand that I was not always successful in treating them, because I had a post-mortem examination—in this case, by sawing up the bones of the foot and pastern, I could see that the inflammatory action extended up the bone, and that even the os suffraginis was considerably inflamed so far as microscopic appearance went.

Mr. Anderson: There is one point I forgot to mention, and that was whether the coffin bone in founder actually descends or not. I for one holds that it does not descend. It is a long subject, and if you like to enter into it I can give my reasons, but I think it might be postponed for another time. The point was raised not long ago in the High Court of Justice, and I would like to get the thing properly thrashed out.

The Chairman: Suppose we arrange to adjourn this discussion on laminitis so as to have one or two points brought in at the next meeting, will you, Mr. Anderson,

open the discussion and bring that in. (Mr. Anderson, I will.) There are a great number of points which are of considerable importance both legally and otherwise in connection with laminitis. I have enjoyed Mr. Douglas's paper and quite agree that a great number of different methods of treatment meet with success. However, I don't just quite agree with Mr. Douglas about the situation which he takes for cutting through the wall. I understood him to say it was opposite where the nails are, up in front of the wall. I am inclined to think that his idea for going through the wall there is to allow all the exudate to pass out. I think, in the general formation of the foot, that a point between that and the sole, just at the very point where the upper part of the sole is, would be fully as good a place to get at, because in that way you would draw the exudate from the lowest point. I quite agree with him that it would be more advantageous to open through the wall than through the sole, because at the sole you have greater risk from contamination and filth which might find their way into the wound. As regards bleeding, I think in the early stages it would be very good treatment. Very frequently when we are called to see a case the thing has been going on for twenty-four hours and sometimes longer than that, and by that time, when the congested condition has disappeared and exudation has taken place, I don't think bleeding would have much effect in reducing the diseased condition. We have treated cases of laminitis for a number of years and I don't remember a case in which we have had to bleed up till now. Our results are comparatively satisfactory.

Mr. Cameron: There is one thing that I think we should always keep in view in such cases and that is never delay too long in laying an animal down if it does not lie down of its own accord. I think it is a benefit to get them off their feet as soon as possible.

Mr. Douglas: I quite agree with the last speaker about getting them down as soon as possible. If they don't lie down within a few hours after being taken out of the hot water they should be put down. There is nothing very striking to reply to. With regard to Dr. M'Call's remarks, the points in a line with the nail holes are generally just at the lower point of the sensitive laminæ of the sole. My idea is to cut at the very lower edge of the bone. In reply to Mr. Anderson about using cold water always after the first day or two, it does not matter in my opinion whether you put on a poultice hot or cold. If there is heat in the foot it is not very long till it is pretty hot. I recommend a clay poultice in chronic laminitis. In cases where they remain over a few days I think it feasible to put them into clay, and I think that resists the cold longer than anything I have applied. In regard to the opening of

the foot and antiseptic dressing, certainly every care and attention should be taken, but I have not had any trouble in opening the wall. Previously to opening the wall I opened the sole and had no end of trouble. In regard to a ball instead of a solution, I have given a horse a physic ball when suffering in the same form and have found the ball still solid 24 hours after it got it, at the post-mortem examination. In giving a stimulating drink I think an aloetic solution acts quicker. I am not like Mr. Blue and Mr. Brownlie because I have these cases very frequently. Every spring we have a number of them, after foaling, and that is a treatment I have adopted. As to the "Lord Lyon" breed of horses I have some experience of them too, and in a large number of cases, of course not every one, they come down in their feet. Some of them were never known to be off their food. They come gradually down Referring to the ascending or descending of the coffin bone, I could have gone into that matter too, but we will leave that to Mr. Anderson. (Applause).

THREE CASES OF PURPURA HÆMORRHAGICA

By Mr. Weir, M.R.C.V.S.

It is not my intention to enter into the pathology of the disease, but rather to draw your attention to the facts and history of three cases, two of which proved fatal many months after what seemed a perfect recovery, and the other, although the animal is still alive and working, presents a very interesting and unique sequel, and worthy of being brought under your notice.

Case I: Following a mild attack of influenza had a prolonged and tedious recovery, being about three months off duty. After getting apparently quite well it was put to work but never recovered its former vivacity, being dull and sluggish, while formerly it had been full of spirits and active.

It continued at work for seven or eight months when it fell suddenly lame in the near hind leg; colicky pain ensued, temperature rose to 105-106°, rigors, with partial sweats; thready, quick pulse; and ultimately convulsions put an end to the animal after an illness of four days.

Diagnosis completely upset, as the post-mortem revealed that death resulted from uræmic poisoning, the left kidney being enlarged and inflamed, with a large quantity of pus in the pelvis and ureter.

Case II: This case, from many points of view, was an exceedingly interesting one. About two years ago I was called in to examine a chestnut horse, rising five years

old, which a firm of joiners in this city had bought for trade purposes. They were quite satisfied with the horse, having tried him for a day in their lorry.

The horse was a small Clydesdale of exceptiona quality, and as the price was large I was asked to examine and certify as to soundness. I did so, and reported the horse, in my opinion, a perfectly sound one, with the exception of a slight cold and nasal discharge. Being asked whether I would advise them to conclude the purchase, as they desired to have immediate use of the horse, I said "I expect that in a few days he will be all right and you cannot be better suited." The dealer was communicated with and he agreed to await complete recovery before receiving purchase price. Two days after, on making a visit, I was much chagrined to find that strangles was developing in the horse, and I at once informed my clients that the horse could not work for three weeks. The disease ran its usual course ; the horse was feeding well and taking exercise, and I advised them that they could now pay the price and put him to work. The very morning he was to start the carter came for me and informed me that the horse was again off his feed and not so well. I at once went with him and again examined the horse. I found that now the parotid gland had commenced to enlarge and would undoubtedly suppurate, which it did, and the horse made a complete recovery, and this time went to work, fully six weeks after the date of purchase. For three weeks he did remarkably well and gave the utmost satisfaction. I was again sent for about that time as his legs were swollen, and at once diagnosed "Purpura Hæmorrhagica." Again the animal was six weeks in the house, and made a perfect recovery, and once more was put to work. For fully a year the horse did well, exceedingly well. The owners were highly pleased, notwithstanding all that had happened at purchase. The work was heavy, as the wood had to be carted out to Gartcosh over a long stretch of macadamised road. One night, more than a year after his being in full work, I was sent for to come immediately, and was just in time to see him collapse from hœmorrhage from the lungs.

Case III: This case is similar to the first one, following a severe attack of influenza in a horse which had wrought in Glasgow for years. The stage of convalescence was very protracted and the horse had to be put in slings, as it could not rise when it lay down for any length of time. The case only differs from the two previous ones in that it had a very curious permanent result, viz.: that peculiar condition of spinal disease known as "Sink-back." Although there was continued improvement of this condition for some months with increasing strength and vigour, yet the want of power and the wavy action of the vertebral column is still quite apparent, and

as the horse has now been working regularly for six months, I do not anticipate any further improvement.

General Remarks. Attacks of Purpura are by no means of rare occurence in this city ; I was almost going to say that the disease was as common as laminitis now. In my experience, and I would suppose in yours also, the mortality is not very great. Following in the wake of the specific fevers, influenza and strangles, as it generally does, no wonder that the disease should be the source of much concern to the veterinary surgeon and the owner and frequently prove fatal. Recovery from specific diseases in most cases gives increased strength and vigour to the frame, and renders the animal immune from further attacks. There is a condition of betterment, if I may use the common term ; but I know of no disease where there is a worse condition of 'worsement' than after pupura. Influenza, when not followed by pupura, is itself a tremendous scourge in a stable. Not that the rate of mortality is high, but from the general loss of tone, energy, and condition amongst the stud, besides conducing to further attacks instead of giving immunity. After purpura many months intervene before complete restoration to health takes place, if ever it takes place at all, but in aged horses it is just about as profitable to the owner that death should take place early, than that his horse should linger out the disease and be a source of continual trouble and annoyance afterwards.

The Chairman : You notice that after the paper on "Purpura" the agenda says, "discussion on same if time permits." Now, I have to put the question, does time permit ? There are one or two other matters that we have still to put before you, and I think perhaps it would be better to adjourn the discussion until the next meeting. Mr. Weir has brought in very interesting cases which, I am sure, are not unfamiliar to a considerable number of us. In my own expeeience, which has not extended to any great length of time, I have seen several cases of purpura which point to its being one of the most troublesome diseases that veterinary surgeons have to contend with. The fatality used to be very great indeed, in fact for some years it was the exception if a horse pulled round, but these fatal cases were, as a rule, occurring in stables which were not so well ventilated nor arranged as a number of the stables are in Glasgow at the present time. I am of opinion that a considerable source of the fatality in purpura is due to the bad hygienic surroundings. Within the last few years the fatal results have been very much minimised, and I think that of the last six cases which I have treated four have recovered. The treatment I will not enter into. However, there are a great many points which are worthyof discussion and which I am perfectly certain will prove of value to all of us in connection with the

Association, and I have much pleasure in asking that we adjourn this discussion to the next meeting. I might ask a gentleman to volunteer to open this subject at the next meeting, and I propose that Mr. Allan should do that. Mr. Weir's paper will be published in the journals and you will see the matter contained in it.

Mr. Weir : Before you go further, if the discussion is to take place at the next meeting on a paper on "purpura," I will give you my mode of treatment, which will lead to some discussion.

The Public Health (Scotland) Bill.

The Chairman : Principal Dewar would like to bring before us a question which is agitating the mind of the veterinary profession to no inconsiderable extent at the present time, that is with regard to the Public Health Bill for Scotland.

Principal Dewar : This subject, as you know, exercised the profession considerably last year, and I suppose will have to say that it was owing to the pressure of public business in the House of Commons that the Bill did not pass. It was brought in again this year practically the same as it was last, and these amendments which we, the profession, did something to try and press on the attention of those in charge of the Bill, have not been given effect to ; in fact it is reintroduced practically in the same form as last year. Now, it naturally affects us very much as a profession. It affects our status as a profession, and it may ultimately affect us financially, and that generally is as large a stimulus to cause us to try to remove anything which may affect us, as even our standing as a profession. If you will excuse me I will begin at the furthest back clause in the Bill which affects us, and come forward, because I will be able to explain it better. Clause 57 of the Bill is that which applies to the inspection of dairies. Now, the Municipal Authorities of this city had the honour of proposing the amendment to this clause which had the effect of blotting out our profession altogether, so far as the dairy cases were concerned, and I am very sorry to say that the Municipal Authorities of Edinburgh backed them up. I will read the parts of the clause which affect us. It says "If the medical officer of any district has evidence that any person in the district is suffering from an infectious disease attributable to milk supplied within the district from any dairy situate within or without the district, or that the consumption of milk from such dairy is likely to cause any such disease to any person residing in the district, such medical officer shall, if authorised by a warrant of a sheriff, magistrate

or justice having jurisdiction in the place where the dairy is situate, have power to inspect the dairy, and *if accompanied* by a veterinary inspector or some other properly qualified veterinary surgeon to inspect the animals therein." Now, it is this part that the Municipal Authorities of Glasgow and those of Edinburgh wish deleted from the clause. I don't know whether they are going to try and obtain the same thing this session or not, but the probability is that they will. "If accompanied by a veterinary inspector or some other properly qualified veterinary surgeon to inspect." They wish that the medical officer and sanitary inspector should have the power, though not accompanied by a veterinary surgeon, to inspect the cows and furnish a report concerning them. Now, I think it is our duty as citizens, apart from the profession altogether, to try and get the Municipal Authorities to see the error of their ways. There are very few medical officers qualified to inspect living animals, and very few even care to do it.

I need not refer further to this clause, as your time is short, and I will call your attention to clause 40, in connection with the inspection of meat. In connection with this section, Lord Balfour did me the honour to grant me an interview with him last year, when I pointed out to him the injustice of it as far as it seemed to me. I thought that I had convinced Lord Balfour that it was unjust, but I had either misunderstood him, or he must have forgotten about the matter, as I left him in the impression that he was going to try and have it put right. As regards unsound food, section 40 says, "Any medical officer or sanitary inspector may at all reasonable times enter any premises, or search any cart or vehicle, in order to inspect and examine, and may inspect and examine, any animal intended for the food of man which is exposed for sale or deposited in any place, or is in course of transmission for the purpose of sale, or of preparation for sale" . . . . . "and if any such animal or article appears to such medical officer or sanitary inspector to be diseased, or unsound, or unwholesome, or unfit for the food of man, he may seize and carry away the same himself, or by an assistant, in order to have the same dealt with by a sheriff, magistrate, or justice." So you see in this section, in regard to unsound food, the veterinary surgeon is left out in the cold, and the medical officer and sanitary inspector are to test whether animals are in a condition that they are supposed to be fit for human food. I pointed out to Lord Balfour last year that if the words, "Carcase of any animal" were inserted. I would have no objection to it. If this section 40 had been drawn in the same spirit as section 57 is in this new Act, with regard to dairies that I read, that is supposing the clauses which the Municipal Authorities of Glasgow and Edinburgh object to were not deleted but still left in, if section 40 had been drawn in the same spirit, I would

have had no objection. I would allow a medical officer to say that a carcase was not fit for human food, but I hold that where it is a living animal, it is a part of the veterinary surgeon's duty to have to do with its condition. Apart from that, it is a far reaching clause. It says, "In preparation for food." Now all our animals, cattle, sheep, pigs, and so on, all their lives are in preparation for food. After they are put to fatten, they must be considered in preparation for food, so that any sanitary inspector or medical officer would be at liberty to go and examine a breeder's stock. In connection with that clause, I might draw attention to the fact that it alters the presumption of the diseased animal, the seller being liable, or the possessor, for a diseased animal, or diseased carcase, which is not fit for human food. That would affect the farmer more than it does. If the farmer sold an animal which was unfit for human food to a butcher or dealer in the town, the liability comes back to the original seller, but it does not do that in the meantime, or at least there was a case disposed of and decided in Kilmarnock, where it seemed to go back.

Mr. Brownlie: Yes, it did go back.

Principal Dewar: But the case has not gone to the High Court. This is the clause, "Where it is shown that any animal or article liable to be seized under this section and found in the possession of any person was purchased by him or consigned to him from another person for the food of man, and when so purchased or consigned was in such a condition as to be liable to be seized and condemned under this section, the person who so sold or consigned the same shall be liable to the penalty and imprisonment above mentioned, unless he proves that at the time he sold or consigned the said animal or article he and the person acting on his behalf, if any, did not know and had no reason to believe that it was in such a condition." You see the presumption of the proof is on the part of the original seller. He has to prove it. I fine that in section 11 and section 15, local authorities are empowered to appoint various officers. Section 11 says, "officers and clerks," and so on; and section 15 says, "shall appoint a medical officer or medical officers, and a sanitary inspector or sanitary inspectors," and so on. Now, when this public bill is going to deal so largely with animals as it does, I think that Parliament ought to have provided also for the appointment of veterinary inspectors. We were met once before with a statement that in Scotland at least veterinary inspectors could not be had, as it were, in every parish or district, but under the Diseases of Animals Acts for 1894, veterinary inspectors have to be appointed by the local authorities, and in rural districts or in small municipalities where there would not be room for appointing a separate inspector for each different district, is there any reason why the inspector under the Disease of Animals

Act should not be appointed and authorised for the same purpose. Now, in connection with the Act, what I think we ought to do is, that everyone of us should try and get at our local members of Parliament. I would like that some member of the Association—I have not the honour to be one myself, unfortunately—would make a motion that the Secretary should communicate with the secretary of the Royal College of Veterinary Surgeons, calling his attention to the matter and asking him to call the attention of the Council to it. The Parliamentary Committee might meet and deal with this as they thought fit, either by means of circular letters to the whole profession or by means of memorialising Parliament, or in some way or other, in order that the professson might have its rights brought before Parliament in connection with this Bill. As the time is short and some one might like to make a remark on the subject, I need say nothing further, except that I will make an explanation or give information if required.

The Chairman : I think the suggestion which Principal Dewar has brought before us is a very good one, and one that we cannot do better than act upon. There is no doubt that at the present time there is a tendency on the part of the Sanitary Authorities to put the veterinary surgeon as much in the background as possible, and if we don't speak for ourselves we won't get any other one to do it for us. I have much pleasure in proposing that this Society should take the steps which Professor Dewar has indicated in order to see if anything can be done to improve matters. It is a piece of rank nonsense for anyone in his senses to consider that a medical man is able to go into a byre and give his opinion with regard to the state of health of a cow. A veterinary surgeon would be equally well entitled and could be expected to take the part of a medical man equally well if he went into a lady's room or into one of the smaller houses in the lower parts of the town where some epidemic was rife and gave his opinion that it was scarlet fever or some other infectious disease. I think the two conditions are equally applicable. Let the medical man keep his own place and the veterinary surgeon keep his. If the two of us can work in unity good and well, and that is the only way in which things can be brought to a satisfactory conclusion.

Mr. Anderson : I have much pleasure in seconding any motion which you can make referring to what Principal Dewar has said, and in doing so I may state that only a few weeks ago I was called upon by the medical officer for the county of Lanark, for which county I act as veterinary inspector, asking me what powers I had to enter any byres, and I told him I had no powers unless I had good grounds for suspecting disease under the Disease of Animals Act. He agreed with me that it was

a pity that the veterinary inspector's powers did not go further than that, because he said that under the present state of affairs he could not ask me even to go along with him to detect cases of disease under the Board of Health Act, but he said he would use his utmost endeavour to bring the matter prominently before the executive committee of the county, for them to bring before the secretary of Scotland the necessity of appointing a veterinary officer along with the medical officer of health for each burgh or county. I must certainly say that Dr. Wilson is in sympathy with our profession. You would perhaps have read the paper which he read in this building about three weeks ago on "Dairy Sanitation." In that paper he certainly gave the veterinary surgeon his proper place, and he for one—and I consider him one of the best authorities in Scotland under the Board of Health—certainly sympathises with our profession, and it is the like of him who can do more for our profession even than our Society can. I have much pleasure in seconding the proposal that you make, and think that a copy should be sent to the Council of the Royal College of Veterinary Surgeons, or to the Secretary for Scotland himself.

Principal Dewar: With regard to the remark which Mr. Anderson made about sending a copy to the Secretary for Scotland, there might be no harm in doing that. In the interview I had with him he seemed to be very much surprised at the understanding which I read into this clause, and he said his impression was that living animals were not intended to be examined by medical men at all. I said that if that was what he understood, he was simply to put it plain in the section, and I asked nothing more, but as the section stands it certainly gives the medical officers a right to go and inspect the living animals. There is one other thing that I might mention. I see you have an election contest going on just now, and this is a question which not only affects us, but farmers and dairymen and stock owners fully as much as it does veterinary surgeons, because it may bring them into trouble, and I would suggest that some of you should get some of the dairymen who are interested to interrogate those would-be Members of Parliament as to the position they would take up in regard to such a question, and that will bring it before the public very much more than any action of ours could do.

Mr. Anderson: A remark was passed by Principal Dewar to the effect that he did not consider himself a Member of this Association. If he is not an Associate of ours, I have much pleasurse in proposing that his name should be put down as an Honorary Member of our Association. He has certainly been a more regular attender that those who are in the immediate neighbourhood. I think you will all agree with me in saying that

his name is deserving of being on our list as an Honorary Member. (Applause.)

The SECRETARY : I beg to second that.

Principal DEWAR : I am certainly very much obliged for the honour which you have done me. I don't think I have done anything to deserve it, but if the Association are pleased to accept Mr. Anderson's statements, I will be happy to do something more in the future that I have done in the past in the way of deserving it.

The CHAIRMAN : We have always to look to the future, and the next point is our next meeting, which will be in May. I have Mr. Anderson's word that he will give us a paper on the descent of the coffin bone. If that paper is in his usual voluminous style, I don't think there will be any necessity for asking any other member present to read a paper, because we have, over and above that, Mr. Weir's supplement to his paper, and I think with these different things in hand we will have ample material for discussion.

Mr. DOUGLAS : I trust the remarks of Principal Dewar will not be lost sight of.

Mr. CAMERON : Perhaps enough has been said upon this veterinary inspection for the moment, but I think the subject is of far larger importance than this. I think we have allowed the thing to slip and go back far too long. At one time I was inspector myself under the Dairies Act, until it was put into the hands of the Sanitary Authorities. I then got shut out of it. It would not have done for me to have agitated that question immediately, because I would have been put down as a disappointed and self-seeking person, but not only I, but I say the whole profession, has disproved any idea of that sort long enough, and I think it is time not only individually and collectively, but also for the public welfare that we were doing something in connection with the inspection of dairies everywhere. I think the Government should make it compulsory that there should be a veterinary inspection of all registered dairy cows. I think it is our duty not to let the subject slip. We should go continuously forward with this subject till we arrive at a better understanding.

After some discussion it was agreed that the Sub-Committee should draw up a resolution and forward it to the Royal College of Veterinary Surgeons, and a duplicate to the Secretary for Scotland.

Votes of thanks were given to the authors of papers, Principal Dewar, and the Chairman, and thereafter the meeting dispersed.

TO THE MEMBERS OF THE PROFESSION.

GENTLEMEN,

I beg to offer myself to you as a CANDIDATE for ELECTION to the COUNCIL of the ROYAL COLLEGE OF VETERINARY SURGEONS, nominated by Veterinary Colonel J. D. LAMBERT, C.B., Director-General of the Army Veterinary Department.

1. I am in favour of Progress, for if the Profession does not advance it will go backwards; it cannot remain stationary.

2. I am of opinion that the public now expects a high degree of education from us, but that this education must not only be theoretical, but thoroughly practical; and any steps taken to bring this end about will receive my cordial support.

3. I consider that we do not receive the official recognition we are entitled to as educated professional men in the matter of exemption from service on juries, proper fees being paid for expert evidence, meat inspectorships, and inspectorships under the Board of Agriculture being in the hands of laymen, together with the constitution of that Board as far as we as a profession are concerned.

4. I am convinced that these matters will not be set right until we have one of our Profession returned as a Member of Parliament to guard our interests, and to this I consider we ought now to direct our attention.

5. Owing to the growth of the empire the Profession requires protection in our colonies and dependencies, and of these I have perhaps a somewhat larger knowledge than most, having visited many of them.

6. Being permanently stationed in London for some time, if I have the honour of being elected I hope to be a Working Member of the Council, without being a London practitioner; and, in short, I will use my best endeavours in forwarding the interests of the Veterinary Profession.

I am, Gentlemen, yours obediently,

JOSHUA A. NUNN, F.R.C.V.S., C.I.E., D.S.O.,

Veterinary Captain,

Army Veterinary Department.

London; February 24th, 1897.

44 PRIZE MEDALS, DIPLOMAS, AND ROYAL APPOINTMENTS AWARDED.

SLY'S IMPROVED

44 PRIZE MEDALS, DIPLOMAS, AND ROYAL APPOINTMENTS AWARDED.

PATENT TRUSS

SUPERSEDES ALL OTHERS.

Worn by Sir A. CLARK, late President of the Royal College of Physicians.

Recommended by Sir BENJAMIN WARD RICHARDSON.

44 PRIZE MEDALS, DIPLOMAS, & ROYAL APPOINTMENTS AWARDED.

Write for particulars and prices,

SLY BROS., OXFORD.

VETERINARY SPECIALITIES.

Telegrams—"PROSUM, LONDON."

THE PHONENDOSCOPE. Of great value in helping to elucidate obscure points of diagnosis in cardiac and respiratory affections. 25/-.

THE "PROGRESSIVE" HANDY POULTICE BOOT, to lace. No. 1, 5/-; No. 2, 5/6; No. 3, 6/-.

DISSECTING CASES, 15/6, 17/6. Aseptic Solid Metal Handles and Case, 25/-.

THE NEW SPIRAL METAL HORSE PROBANG. 10/6.

THE "GUINEA" EMERGENCY POCKET CASE. Syme and Scalpel, Scissors, Forceps, Probe, Director, Needles, and Silk. 21/-.

THE "PROGRESSIVE" CASE OF FOOT KNIVES. 21/-; with French Knife, 25/-. In Metal Case, Aseptic, 25/-.

THE "PROGRESSIVE" HYPODERMIC SYRINGE and Four Pellet Tubes, in Flat Case. 21/-.

THE "REVELATION" MOUTH-GAG AND SPECULUM (Prov. Pat.), 42/-

C. H. HUISH,

Patentee & Specialist in Veterinary Instruments,

8, FISHER STREET, RED LION SQUARE, LONDON, W.C.

Please note Change of Address.] [Six Doors West of R.C.V.S.

Telegrams—"PROSUM," LONDON.

THE

PROFESSIONAL EMPLOYMENT BUREAU

AND

GENERAL TRANSFER AGENCY

Established for the purpose of Supplying the Profession with Capable and Reliable Locum Tenens and General Assistants.

And for the Disposal of Practices and Partnerships.

Terms and particulars post free.

—:o:—

C. H. HUISH,

8, FISHER STREET, RED LION SQUARE, W.C.

Six doors west of R.C.V.S.

THE VETERINARIAN'S CLINICAL CASE-BOOK.

London: C. H. HUISH, 1896.

Half-bound Cloth, 3/6 post free.

Contains Index, Temperature, Respiration and Pulse Charts, Spaces for Breed of Animal, &c., Owner's Name, History of Case, Symptoms, Diagnosis, Prognosis, Treatment, Result, &c. Ruled for 130 Cases.

BRASS DOOR PLATES.

THOMAS MORING,

52, HIGH HOLBORN,

LONDON, W.C.

(Five doors West of First Avenue Hotel.)

Book of Specimens free on application.

THE

'VETERINARIAN.'

SUBSCRIPTIONS 1*s.* 6*d.* monthly, 18*s.* annually, post free. Annual subscribers may have their copies forwarded on the day of publication on application to Messrs. Adlard and Son, Bartholomew Close, London, E.C.

WRIGHT'S

"A most effective agent in skin diseases" (*Lancet*).

An Alcoholic Solution of Coal Tar, giving an Emulsion when diluted with water, and a Detergent Lotion of marvellous efficacy.

"LIQUOR

"We can affirm its value as a detergent" (*British Medical Journal*).

A Specific for Skin Disease in Man and Beast.

(REGISTERED)

PRICES:

2 pint . 6/- each.
4 ,, . 11/- ,,
1 gall. . 22/- ,,
(*Less Trade discount.*)

CARBONIS

Recommended by the Medical Profession for more than one third of a century.

Of all Wholesale Houses in Great Britain, Ireland, and Colonies;

AND OF THE

Manufacturers and Proprietors,

WRIGHT, LAYMAN & UMNEY,

Southwark, London, S.E.

DETERGENS."

TETANIN SERUM

Used in Veterinary Medicine as a preventive of Tetanus, before operations, as castration, docking, &c., and after accidents to the foot, &c., as a curative.

MALLEIN

A most reliable test for Glanders.

TUBERCULIN

Has been successfully employed as a test for Tuberculosis.

Supplied for Subcutaneous Injection with Directions ready for use. Special Syringes for injecting the Solution 10/6 *each.*

BURGESS'S PLASTER BANDAGE.

At the end of the hunting season it is a common practice to blister the "bumpy" legs of horses which have suffered from work and bruises. This course is quite unnecessary, if even it is not positively injurious. Pressure applied by means of a firm adhesive bandage is altogether a better way of treatment. A very simple and effective bandage for this purpose is BURGESS'S PLASTER BANDAGE, supplied by Willows, Francis and Butler.—*Veterinary Record.*

NOTICE.—As cheap and inefficient substitutes are offered to the profession, please note in ordering to ask for Burgess's.

A Large and Varied Stock of Instruments for Veterinary use,

An inspection of which is respectfully invited. Price lists free to the Veterinary Profession. Also a Book of Formulæ of new and special preparations.

WILLOWS, FRANCIS AND BUTLER,

Manufacturing Wholesale Druggists,

101, HIGH HOLBORN, LONDON, W.C.

PRINTED BY ADLARD AND SON,
BARTHOLOMEW CLOSE, LONDON, E.C., AND 20, HANOVER SQUARE, W.